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# THE JOURNAL

OF ERW AND MINE ACTION

Issue 17.3 | Fall 2013

## **SURVIVOR ASSISTANCE**

Gender and Age Issues  
Disability Rights  
Peer Support

## **SPECIAL REPORT: SYRIA**

### **PLUS ...**

Feature: The Middle East  
Notes from the Field  
Research & Development





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A survivor shows his prosthetic leg.  
*Photo courtesy of Jorge Henao.*

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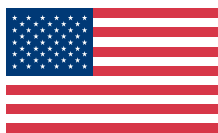
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## Director's Message

Dear Readers,

As the director of the Center for International Stabilization and Recovery (CISR) at James Madison University and a landmine survivor, I educate others about the dangers of landmines and explosive remnants of war (ERW). I urge survivors to embrace life by becoming aware of their rights and taking control of their recovery and future. Students and staff at CISR are aware that they should never travel without knowing three things: (1) their blood type, (2) how to use a tourniquet and (3) to keep their mobile phone or two-way radio with them at all times, especially when traveling in known mine/ERW contaminated areas. These three things saved my life 20 years ago, when I was injured by a mine in Somalia.

In September, I traveled to Zambia for the Fourth Meeting of the States Parties to the *Convention on Cluster Munitions* (CCM), where I met people involved in survivor assistance activities from around the globe. I presented on victim assistance and information management along with the Geneva International Centre for Humanitarian Demining, the *Landmine and Cluster Munition Monitor*, and the Vietnam Veterans of America Foundation. The *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction* was the first convention to include victim assistance in its provisions. The CCM continues to include this component.

The Focus section of this issue offers a selection of articles about disability rights, gender and the power of peers in survivor assistance. Megan Burke and Loren Persi, two of the world's leading mine and cluster munitions victim assistance researchers, highlight several organizations that are empowering survivors. Ayda Eke looks at how the needs of landmine/ERW child survivors differ from adult survivors.

The Feature section examines the changing landmine/ERW situation in the Middle East and its effect on the population. In particular, Nataša Uršič and Goran Gačnik describe the rehabilitation program initiated by ITF Enhancing Human Security for injured children and young adults in the Gaza Strip.

In the Special Report section on Syria, Elizabeth MacNairn and Molly Feltner discuss Handicap International's operations in northern Syria. Mike Geddes of streetfootballworld USA introduces Spirit of Soccer's innovative mine risk education program serving Syrian children in the Zaatari refugee camp in northern Jordan.

In recent years, maintaining the necessary resources for mine action has become a global challenge as land is released, donor funding diminishes and international attention turns away. In response, our next issue will focus on these issues. As always, we look forward to learning from your experiences, challenges and triumphs.

Sincerely,

Ken Rutherford



## Table of Contents

### Editorial

- 3 Director's Message
- 4 Landmine Injuries and Human Rights: The Terminology of Victims and Survivors by Cameron Macauley

### Focus: Survivor Assistance

- 6 The Power of Peers: Rethinking Victim Assistance  
by Ken Rutherford and Cameron Macauley
- 10 Survivors Promote Victim Assistance and Disability Rights  
by Megan Burke and Loren Persi
- 14 Adapting Survivor Assistance to the Needs of Child Survivors  
by Ayda Eke
- 18 Masculinity: The Unseen Barrier in Survivor Assistance  
by Anne-Sophie Duprat and Lusja Peçak

### Feature: The Middle East

- 22 Rehabilitation for Gazan Children and Young Adults  
by Nataša Uršič and Goran Gačnik
- 26 Demining Quality Management: Case Studies from Jordan  
by Jamal Odibat

### Special Report: Syria

- 30 Aiding Survivors of the Syrian Crisis  
by Elizabeth MacNairn and Molly Feltner
- 36 Spirit of Soccer in the Zaatari Refugee Camp  
by Mike Geddes

### Notes from the Field

- 40 Self-Help Ammunition Destruction Options Worldwide (SHADOW)  
by Lee Moroney and Kay Gamst
- 44 Has the CCM Accommodated Gender?  
by Dalila Mahdawi

### Research and Development

- 50 Miniature Aerial Photography Planes in Mine Action  
by Inna Cruz and Daniel Ericksson
- 58 Reinforcement for Operational Mine Detection Rats  
by Amanda Mahoney, Christophe Cox, Bart J. Weetjens, Tess Tewelde, TeKimiti Gilbert, Amy Durgin and Alan Poling

### Obituary

- 63 In Remembrance: Michael Creighton

### Endnotes 64

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# Landmine Injuries and Human Rights: The Terminology of Victims and Survivors

*"The words **victim** and **survivor** are not interchangeable. The word **victim** refers to someone who is the object of abuse and as such implies helplessness. It is correct to use **victim** when discussing someone who is injured by a landmine, but not someone who is in the process of recovering, since we do not consider that person to be helpless."*

~ Jerry White, co-founder of Landmine Survivors Network, November 2005<sup>1</sup>

by Cameron Macauley [ CISR ]



Ken Rutherford (left) and Jerry White (right), co-founders of Landmine Survivors Network, helped guide Princess Diana on her final humanitarian trip to Bosnia to meet landmine survivors and their families, 9 August 1997.

*Photo courtesy of Landmine Survivors Network/Survivor Corps.*

When landmine survivors Ken Rutherford and Jerry White argued for the inclusion of a victim assistance clause in the *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction* (Anti-personnel Mine Ban Convention or APMBC), they took an unprecedented step forward by helping to create the first arms treaty to

recognize the needs of the injured.<sup>2</sup> The language used in the APMBC has become the foundation for the debate on victims and survivors of explosions caused by landmines, unexploded ordnance and cluster munitions. Unheard of 20 years ago, victim assistance is now a field unto itself, and survivors from every conflict-affected nation have mobilized to campaign for the recognition of their rights.

Is there really a distinction between a victim and a survivor? Does this terminology make any difference, or is this just another quibble over semantics? Notably, the discussion assumes that the words we use will influence our thinking and that our thinking will influence the words we use.<sup>3</sup>

### Defining the Differences

In common parlance, the term **victim** implies the passive state of suffering harm, injury or death due to an accident or a crime. The victim does not act but is acted upon. In contrast, the term **survivor** implies a more active state: In addition to surviving an event that might have been fatal, often when others did not survive, the act of survival also encompasses the notion of persevering despite severe circumstances—in the case of landmine survivors, clinging to life despite blood loss, missing limbs and shock.

Rutherford and White took this distinction even further when they founded Landmine Survivors Network in 1997.<sup>4</sup> For them, **survivorship** is an inherently active state in which the struggle toward recovery drives survivors to help others recover, to campaign for the rights of people with disabilities and the rights of those affected by violent conflict, and to end the indiscriminate use of weapons that kill and maim civilians for years after a war is over.<sup>5</sup> A survivor works to make the world a better place by preventing others from suffering the years of physical and emotional agony inflicted by a landmine. This distinction between victim and survivor has become standard for those experiencing various types of trauma, which includes sexual violence, domestic violence and other violent crimes.<sup>6,7,8,9</sup>

But there is a less obvious distinction between victims and survivors of landmines. The landmine victim is not some hapless individual affected by a sponta-

neous event. A landmine is an explosive device deliberately created to maim or kill. Whether the victim is the target for whom the device was intended is irrelevant: Devices placed in areas where non-combatants may be present can cause devastating injuries or deaths to those working to rebuild peaceful societies. The injustice extends to the discrimination against and marginalization of people with disabilities when a landmine victim is denied employment and excluded from participating in society, and becomes powerless to improve his or her life.

The survivor helps others recover from landmine injuries by rebuilding self-confidence and by teaching autonomy and independence. The survivor educates those around him or her about the needless suffering inflicted by explosive remnants of war and how this suffering contributes to the desire for revenge and eventually, renewed violence.

Until now, our definition of a **landmine victim** was merely someone whose life was affected by a landmine. But the civilian landmine victim is also the helpless victim of war whose life is forever changed and whose new challenges are not limited to physical injury but also to overcoming discrimination and social isolation. Our definition of **landmine victim** should provoke us to take action to prevent further victimization and help turn victims into survivors. Victims are helpless, survivors are not: **Landmine survivors** serve as examples to all of us that the strength derived from adversity is a potent weapon. ©

*See endnotes page 64*

*Note: Ken Rutherford is the director of James Madison University's Center for International Stabilization and Recovery. Jerry White is the deputy assistant secretary for Partnerships and Learning at the U.S. Department of State's Bureau of Conflict and Stabilization Operations. Both remain active in victim assistance and in promoting landmine survivors' rights.*



Cameron Macauley, MPH, joined CISR in August 2010 as its peer support and trauma-rehabilitation specialist. He holds a Master of Public Health as well as degrees in anthropology and psychology, and became a physician assistant in 1983. He has worked in a refugee camp on the Thai-Cambodian border, at a district hospital in Sumatra, as a Peace Corps volunteer in Guinea-Bissau, in Mozambique where he taught trauma surgery for landmine injuries, in an immunization program in Angola and in a malaria-control program in Brazil. Between 2005 and 2010, he taught mental health courses for Survivor Corps in Bosnia and Herzegovina, Colombia, El Salvador, Ethiopia, Jordan and Vietnam.

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# The Power of Peers: Rethinking Victim Assistance

Peer support is a psychological tool that can expedite recovery time and have long-lasting positive results for landmine/explosive remnants of war survivors.

by Ken Rutherford and Cameron Macauley [ CISR ]



Two survivors discuss peer support in El Salvador, 2005.  
Photo courtesy of the authors.

Victim assistance for landmine survivors has evolved considerably in the past 16 years. As of 2011, 19 States Parties to the *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction* (Anti-personnel Mine Ban Convention or APMBC) have established functional national coordination mechanisms addressing victim assistance, and many other programs around the world are growing rapidly to meet the needs of those injured by landmines and other forms of explosive remnants of war (ERW).<sup>1</sup> These programs seek to fulfill the directive of the 2008 *Convention on Cluster Munitions* “to incorporate relevant guidelines and good practices in the areas of medical care, rehabilitation and psychological support, as well as social and economic inclusion.”<sup>2</sup>

Since 2010, at the Center for International Stabilization and Recovery (CISR), we have come to the conclusion that psychosocial support is a crucial component of recovery—including physical recovery from injuries inflicted by a blast—and that it should occupy a central place in all victim assistance programs. A growing body of evidence indicates that physical and emotional healing and social reintegration occur sooner when a survivor has firm and consistent support from other people (especially peers) and, by making his or her own decisions, is empowered to participate actively in the recovery process.

## The Science Behind Peer Support

Encouragement, guidance and sympathetic listening are the main components of social support.<sup>3</sup> This support may come from friends or family

members but is most effective if given by someone with whom the survivor can have a meaningful dialogue. Often the most valuable support comes from peers—people with similarities to the survivor in terms of age, gender, cultural background and personal history, including having survived a similar trauma. Because of this shared experience, a bond forms based on a common perception of the challenges faced during recovery and the most practical ways of overcoming them.<sup>4</sup>

Until the late 1990s psychosocial support was poorly understood as an element of recovery from psychological trauma. In 2002 Mark Salzer, currently the chairman of the department of rehabilitation sciences at Temple University (U.S.), postulated that recovery is facilitated when a survivor observes the behavior and attitudes of other people who are also recovering. Salzer noted that people compare themselves to others and rely on the opinions of others to evaluate themselves. This is crucial in developing sufficient confidence and willpower to get through stressful physical rehabilitation, to re-enter the work force, and to cope successfully with painful memories, grief and anger. People are also more likely to change their behavior to conform to someone who is of the same age, gender and social origin.<sup>5</sup>

It is important to remember that recovery is not a discrete event or a well-defined milestone.<sup>6</sup> Survivors of violent trauma typically spend the rest of their lives in a state of recovery, which is a steeper climb for some than others.<sup>7</sup> For many there are good days when the past recedes into the distance and bad days when all progress seems lost. One of the crucial virtues of peer support is the presence of a friend who has climbed that hill already and can help the survivor get through a difficult phase.<sup>8</sup>

Studies show that support from peers helps landmine survivors accept their disabilities sooner, progress faster in their recovery, deal with stress and adhere to medical treatment.<sup>9</sup> Amputees receiving peer support suffered lower rates of depression, complained less of physical pain and scored higher on life-satisfaction questionnaires.<sup>10</sup> Mental-health benefits from peer support are not temporary but persist for at least two years.<sup>11</sup>

Because peers share fundamental characteristics and because they have survived the same type of trauma, it is easier for two survivors to develop a rapport—an often subliminal emotional parity in which anger, grief, guilt and fear need not be expressed in words.<sup>12</sup> This rapport fosters a deeper trust and a more concise, profound communication than in most counselor-counsee interactions, especially those in which the counselor is from a different educational and experiential background. Peer trust and peer rapport form quickly and



Survivors from Yemen meet at a CISR conference for landmine survivors held in Lebanon in 2011. The conference was funded by the Office of Weapons Removal and Abatement in the U.S. Department of State's Bureau of Political-Military Affairs (PM/WRA).

*Photo courtesy of the authors.*

firmly; therefore a peer support worker with good counseling skills has the potential to provide better guidance and emotional education to survivors.

Peer support workers must complete focused, culturally appropriate training to acquire skills in listening, building self-esteem, and teaching survivors about impulse control, anger management, future orientation and life planning.<sup>13</sup> Close and competent supervision of peer support workers by a professional counselor is also essential. The peer support relationship is not intended to substitute for psychotherapy, which is necessary in some cases of post-traumatic stress, depression and other mental illness. When peer support is offered together with professional counseling, the results are always better.<sup>14</sup>

It is wrong to think of the peer support relationship as therapeutic. Rather, it is intended to facilitate the healing process that takes place naturally. As any good counselor or therapist knows, the process of healing after a traumatic experience is largely internal, and most persons who have experienced a traumatic event are capable of recovering with little or no help.<sup>15</sup> With peer support, healing can take place much faster. The key element in the peer support relationship is listening.

### Why Listening Matters

Active listening has been a core of psychotherapy since Austrian physician Josef Breuer coined the term “talking cure” in 1895.<sup>16</sup> Early psychotherapists discovered that many patients felt relieved after describing their traumatic experiences and their subsequent thoughts and feelings.<sup>17</sup> Then in 1983 a pair of





Peer support worker Zeljko Volas talks with a survivor in Bosnia and Herzegovina in 2005.

*Photo courtesy of Paul Jeffrey.*

psychologists working with former political prisoners in Chile discovered that the act of providing detailed testimony led to a marked alleviation of symptoms (such as anxiety, depression, insomnia and bouts of weeping) in most patients.<sup>18</sup> This study inspired a therapeutic method known as narrative-exposure therapy in which survivors of trauma heal by telling or writing their stories.<sup>19</sup>

The story must be told to a willing listener. As psychiatrist Jonathan Shay says, “Narrative is central to recovery from severe trauma. It’s not simply the telling of the story, it is the whole social process. If I have suffered some terrible experience, I have to be socially empowered to tell the story. You have to be socially empowered to hear it.”<sup>20</sup> Richard Mollica, a professor of psychiatry at

Harvard Medical School and the director of the Harvard Program in Refugee Trauma at Massachusetts General Hospital (U.S.), has proposed that describing a traumatic experience is especially therapeutic if the audience is sympathetic and shares an understanding of the trauma’s context.<sup>21</sup> If this is valid, it would seem that the best possible audience would be another person of the same gender and about the same age who has survived the same type of trauma. Brain studies now provide physiological evidence that this works by re-associating traumatic memories with the perceived empathy and affection of a caring listener.<sup>22</sup>

### Peer Support Workers

However, peer support goes far beyond healing painful memories. The best peer support workers help survivors solve problems in their daily lives such as unemployment, drug or alcohol abuse, domestic conflicts, poverty, health problems, and lack of education—many of which are closely associated with their psychological and physical traumas. The peer support worker provides guidance and information so that survivors can derive satisfaction and self-confidence from solving these problems themselves. Having a job or a business and supporting a family means contributing fully as a member of society, which builds self-esteem to replace the shame and helplessness that burden so many survivors. Solving problems helps survivors create a vision of their future and inspires hope. If the future is attainable, it becomes easier to stop dwelling in the past.

CISR’s program in Burundi, operated by the *Centre d’Encadrement et de Développement des Anciens Combattants* (Center for Management and Development of Veterans or CEDAC) with support from Action on Armed Violence,

incorporates this research into a fully-fledged psychosocial support program.<sup>13</sup> The same model has been successfully followed by programs run by other non-governmental organizations:

- Landmine Survivors Initiative provides peer support for landmine survivors in Bosnia and Herzegovina.
- *Fundación Red de Sobrevivientes y Personas con Discapacidad* (Foundation Network of Survivors and Persons with Disabilities in El Salvador) provides peer support for persons with disabilities in El Salvador.
- African Centre for the Treatment and Rehabilitation of Torture Victims provides peer support for torture survivors in Uganda.
- The Association for the Empowerment of Persons with Disabilities provides peer support to persons with disabilities in Vietnam.
- IBUKA (Kinyarwanda for 'never forget') provides peer support for genocide survivors in Rwanda.<sup>23,24,25</sup>

Survivors of many different kinds of trauma are involved in these programs, and the benefits have been observed in almost everyone who receives peer support.<sup>26</sup> Peer support workers also find the job rewarding and therapeutic.

### Put Psychosocial Support First

When survivors regain self-confidence and begin to think positively about the future, they have less difficulty tackling challenges such as physiotherapy, rebuilding a home or returning to work. For this reason, psychosocial support—particularly the support of other survivors—should be the central pillar of any victim assistance program. One long-lasting positive outcome is the formation of a network of survivors, bonded by their shared experiences and



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dedicated to helping other survivors of trauma. This was one of the goals of Landmine Survivors Network when it was founded in 1996.<sup>27</sup>

Every victim assistance program should seek out and employ survivors in leadership roles, and should train survivors in basic counseling techniques. Survivors should participate in all major activities and in developing policies and protocols. Gone are the days when decisions were made for survivors and not by them. This is the meaning of empowerment. 

See endnotes page 64

# Survivors Promote Victim Assistance and Disability Rights

In 2012, the International Campaign to Ban Landmines and the Cluster Munition Coalition launched the Survivor Network Project, in which networks of landmine survivors collaborate to develop victim assistance objectives. One year after its launch, the Survivor Network Project has achieved some success.

by Megan Burke and Loren Persi [ ICBL-CMC Survivor Network Project ]

The International Campaign to Ban Landmines (ICBL) and the Cluster Munition Coalition (CMC) are international networks working to free the world of landmines and cluster munitions and enable survivors and their families to lead fulfilling lives.

Building on past efforts, ICBL-CMC launched the Survivor Network Project in 2012 to offer financial and technical support to both established and promising survivor networks, with the goal of sustaining and building their capacities. ICBL-CMC brings together more than 25 national and local networks of landmine and cluster munition survivors. The Survivor Network Project enables representatives of these networks to more effectively

- Assess the needs of network members, disaggregated by gender and age, in order to shape the development of government victim assistance policies as well as contribute to the development of the networks' national strategic plans
- Empower survivors at the grassroots level and facilitate their socioeconomic inclusion
- Serve as effective national and international proponents for the universalization and full implementation of all articles of the *Convention on the Prohibition of the Use, Stockpiling, Production*



At the opening ceremony of the *Fundación Red de Sobrevivientes y Personas con Discapacidad* (Foundation Network of Survivors and Persons with Disabilities), survivors prepare to launch income-generating projects in El Salvador. Photo courtesy of Fundación Red de Sobrevivientes y Personas con Discapacidad.

*and Transfer of Anti-personnel Mines and on Their Destruction* (Anti-personnel Mine Ban Convention or APMBC) and the *Convention on Cluster Munitions* (CCM)

- Participate in multisector victim assistance and disability coordination mechanisms and contribute to the design, coordination, implementation and monitoring of victim assistance in their countries

Prior to the launch of the Survivor Network Project, ongoing activities were conducted through ICBL-CMC victim assistance focal points (VAFP), who have worked to ensure the achieve-

ment of the conventions' action plans since 2009. VAFP are campaign members, survivors, practitioners and representatives of disability organizations who participate at the national level and in partnership with ICBL-CMC, advocating for victim assistance in countries with significant numbers of survivors. VAFP are present in almost 30 countries, of which 25 are States Parties to the APMBC.

Most VAFP-developed advocacy plans have measurable objectives that aim to ensure concrete changes in the lives of survivors and persons with disabilities. Many have already achieved some of these goals, such as the ratification of the *Convention on the Rights*





The Afghanistan Landmine Survivors' Organization's mainstreaming center.  
Photo courtesy of the authors.

of *Persons with Disabilities* (CRPD), the adoption of national laws for the rights of disabled people, the establishment of victim assistance coordination mechanisms and the development of national action plans.

The Survivor Network Project was designed to build upon the work of the VAFP and respond to the needs and interests of survivors to enhance their participation in both campaigns. The work of the Survivor Network Project also builds upon the legacy of ICBL member Landmine Survivors Network, which later became Survivor Corps and ended operations in 2010.

#### Achievement of Survivor Networks

Thus far, ICBL-CMC has used funding provided by Norway to support 11 survivor networks. ICBL-CMC was also able to provide technical, capacity-building support to additional networks.

Here is a brief overview of the achievements of four of the more established survivor networks:

The **Afghan Landmine Survivors' Organization** has enabled hundreds of landmine survivors, persons with disabilities and members of the community, most of whom are children, to acquire new skills in literacy, English, computers and mathematics. Having these skills increases survivors' chances of employment and helps inform them of their rights. The establishment of women's committees

has ensured the inclusion of women in advocacy and other program activities.

Through its health-, peer- and economic-support programs, the **Association for Empowerment of Persons with Disabilities** in Vietnam has empowered survivors and disabled people to lead independent lives and become more involved within their communities.

In El Salvador, the *Fundación Red de Sobrevivientes y Personas con Discapacidad* (Foundation Network of Survivors and Persons with Disabilities) held a national forum on disability rights that contributed to the development of protocols for medical attention for disabled people. Twenty local survivor organizations have advocated for disability rights at the municipal level, and the foundation's health and economic opportunity programs assisted their members in becoming mobile and gainfully employed.

**Landmine Survivors Initiatives** in Bosnia and Herzegovina provides peer support, health referrals, economic support and business training. In 2012, 43 survivors who had received support "paid it forward" by providing community service to 150 different survivors and family members, effectively multiplying the impact of the program.

Seven other emerging survivor networks received year-long support grants starting in July 2012:

The **Association of Albanian Assistance for Integration and Democratic Development**, more commonly known by



Survivors in Bosnia and Herzegovina display cheese produced as part of an income-generating project.  
Photo courtesy of the authors.

its acronym ALB-AID and formerly the Victims of Mines and Arms Kukes, increased coverage to include three more districts of the country, strengthened links with other disability organizations and successfully advocated for the ratification of the CRPD.

The *Association Sénégalaise des Victimes de Mines* (Senegalese Association of Mine Victims) offered peer support and seed financing for small businesses through five, local survivor groups, organized a sporting event with survivors from Guinea-Bissau and hosted two trainings on gender in mine action and victim assistance.

The survivor network of the **Cambodia Campaign to Ban Landmines** met with provincial leaders of mine affected communities throughout the country to raise awareness of the rights and needs of survivors and other persons with disabilities.

A product of the Survivor Network Project, the **Consortium of Survivor Networks** in Democratic Republic of the Congo held a national forum, hosted by the Congolese Campaign to Ban Landmines, for the ratification of the CRPD. The consortium also held a peer-support training for survivor leaders from Kinshasa and North and South Kivu, the first such training ever held in the country.

The Tajik Survivor Network of the **Tajikistan Campaign to Ban Landmines** engaged government representatives to promote the ratification of the CCM and to raise awareness about the need to improve victim assistance. The campaign also opened a mainstreaming center in Rasht Valley, an affected community, to train survivors and persons with disabilities in marketable skills.

The **Uganda Landmine Survivors Association** organized local survivor networks in two districts of northern Uganda and provided health and economic support to enable survivors to become more independent.

*Yitawekilgn Yeakal Gudatagnoch Mehiber* (YYGM—Recognize our Disability), a local organization of survivors established by the former Landmine Survivors Network branch in Ethiopia, engaged in peer support and provided economic opportunities to survivors. YYGM has provided capacity building to three other networks including the National Association of Women with Disabilities, which also has survivors among its members.

All 11 survivor networks funded through the project carried out rights-based victim assistance advocacy, illustrating the important role that survivors have in building

strong national advocacy campaigns for all aspects of the APMBC, CCM and CRPD.

In December 2012, the Survivor Network Project hosted representatives of 15 survivor networks for the workshop “Disability Rights: Opportunities for Survivor Networks.” Facilitated by Marianne Schulze, a human rights consultant and expert in disability rights, the workshop provided practical advice to network leaders on how to become more involved in national advocacy for disability rights through the CRPD and other human rights frameworks.

At the international level, during the Twelfth Meeting of States Parties to the APMBC, all participants learned about the active role that survivors and their representative organizations have in advocating for increased victim assistance at the national level. “Survivors in Action,” a week-long multimedia exhibition and advocacy space, presented the actions of 15 different survivor networks from around the globe and was frequently used by campaigners and delegates. More than 60 delegates from governmental and nongovernmental organizations participated in a discussion on how to promote survivor inclusion in monitoring and reporting on the APMBC.

### Disability Rights


Considerable overlap is recognized between groups of armed conflict victims and persons with disabilities, and increased collaboration among these communities has benefited efforts to advance the rights of both groups.

In the context of humanitarian victim assistance, survivor networks have raised awareness in mine-affected countries of the rights of persons with disabilities. Some networks have become increasingly involved at the national level and have advocated for the universalization and implementation of

the CRPD. Others are looking at how they can contribute to advocacy in their countries.

Through the ICBL-CMC’s Survivor Network Project, national networks of survivors will continue to hold governments accountable for the commitments they have made to survivors under arms treaties, particularly the APMBC and the CCM. At the same time, they will increasingly and deliberately connect this advocacy with the work of national disability organizations to improve the implementation of the CRPD and the humanitarian aims of disarmament conventions in their countries. Experience thus far has shown that

- Advocating for victim assistance opens the door to discussion on disability rights in some countries where it is otherwise not possible to discuss human rights at all.
- Vocal survivors who are involved in advocacy and victim assistance raise awareness of the capabilities of persons with physical, mental or intellectual disabilities as leaders in their communities.
- Because the majority of conflict victims are based in rural and remote areas, victim assistance efforts lead to the development of services, programs and initiatives in these areas that benefit all persons with disabilities.

ICBL-CMC, through the Survivor Network Project, looks forward to broadening these experiences to promote the rights of landmine and cluster munition victims and all disabled people. 



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# Adapting Survivor Assistance to the Needs of Child Survivors

The needs of child survivors of landmine and explosive remnants of war incidents differ significantly from those of adult survivors and must be considered when developing assistance programs.

by Ayda Eke [ UNICEF ]

Child survivors of landmine and explosive remnants of war (ERW) incidents have specific needs that differ considerably from those of adults and require special consideration in all areas of survivor assistance. Despite the international community's efforts, age- and gender-appropriate assistance for child survivors continues to be a key gap in survivor assistance. In a 2009 survey of more than 1,600 survivors from 25 countries, "some 44% of respondents said that services for children were 'never' or 'almost never' adapted to their age, a finding that should be accurate, as most respondents were young when they experienced their incident."<sup>1</sup>

States Parties to the *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction* (Anti-personnel Mine Ban Convention or APMBC) acknowledged in their 2004 Nairobi Action Plan that survivor assistance efforts must give emphasis to age and gender considerations.<sup>2</sup> These states reiterated this commitment in 2009 through the Cartagena Action Plan.<sup>3</sup> Furthermore, the *Convention on Cluster Munitions* explicitly acknowledges the need to provide age- and gender-sensitive assistance and defines the parameters of victim assistance to include medical care, rehabilitation, psychological support, and social and economic inclusion.<sup>4</sup> The *Convention on the Rights of Persons with Disabilities* (CRPD), which has been in effect since 2008, also addresses age and gender considerations by specifically recognizing the unique needs of children with disabilities, and women and girls with disabilities.<sup>5</sup> While these acknowledgments apply only to States Parties to these conventions, they provide an indication of international concern for child survivors.

## Medical Care and Rehabilitation

More than adults, children's smaller bodies are particularly susceptible to severe and life-threatening injuries from landmine/ERW blasts, which can cause severe burns, damage to limbs, injuries to the genital area and urinary tract,

blindness, hearing loss and death.<sup>6</sup> One-third of all landmine survivors require amputation. While lack of data means the specific percentage of children who have had amputations is unknown, the proportion is likely higher given children's vulnerability to severe injury.<sup>7</sup>

Furthermore, a child's rehabilitation process is often more complex than an adult's. Due to secondary infection and the nature of their developing bodies, child survivors often need re-amputation and more frequent corrective surgery. They may require as many as 35 prostheses and modifications throughout their lifetimes.<sup>8</sup> Age-specific survivor assistance requires policies and programs that reflect the frequency at which children require immediate and long-term specialized medical care, prostheses and other disability aids.

In Eritrea, mobile emergency medical response and mobile orthopedic workshops and services have been proposed as an effective means of outreach to remote areas, and to address challenges such as the financial and travel burden on families with limited resources. Unfortunately, lack of funding has inhibited the ability to implement such services to meet the needs of children and other survivors.

## Psychological Support and Socioeconomic Inclusion

Psychological trauma in the immediate aftermath of an incident and long-term psychosocial distress can cause extreme emotional hardship for children. Injuries may impair children's emotional and cognitive functioning, and survivors may experience feelings of depression, anger, fear, guilt and worry. Adapting to a new body image and identity can be particularly challenging for adolescents.<sup>6</sup>

Psychosocial support services should address age- and gender-specific psychosocial reactions and distress factors. Discrimination, stigma, and social exclusion can exacerbate the psychosocial impact of injuries, becoming an additional source of distress for survivors with disabilities. As such, efforts on behalf of child survivors must include advocacy for



Eight-year-old Abbas with his sister in the Al-Mazrak displacement camp in Majah Governorate, Yemen. Abbas was blinded in one eye and wounded in the chest in a landmine blast that also killed his uncle.

Photo courtesy of UNICEF/NYHQ2010-2846/Brent Stirton.

policies and programs that seek to combat prejudice and discrimination. For children, this must include efforts to combat stigma and among caregivers, families, peers, communities and institutions (schools, service providers, etc.).

Providing information and support to child survivors and to those living and working with them is also critical. Families and communities are often limited in their ability to assist child survivors with their recovery. This gap can contribute to psychosocial distress and may further inhibit their recovery.

Returning to school is vital to the socioeconomic inclusion and psychosocial recovery of child survivors. Survivor assistance programs play an important role in promoting inclusion and access to education for children with disabilities. Education serves to reintegrate child survivors with peers, fosters a sense of normalcy and opportunity, and is the foundation of viable opportunities for livelihood and equal participation in their communities.

Survivors are often denied education because of issues ranging from transportation difficulties and inaccessible

classrooms to the additional burden of educational costs on families with considerable medical expenses.<sup>9</sup> For older adolescents, vocational training and income-generation opportunities can be crucial to socioeconomic inclusion, and yet programs strengthening their economic standing seldom consider adolescent age and gender.

A 2011 report on the *Impact of Economic Strengthening Programs on Children* found that not only do these programs seldom benefit children, they may potentially cause harm and increase risks of school dropout, exploitation, gender-based violence and adverse child-labor practices. The study called on practitioners to incorporate “children’s protection and well-being into the assessment, design, implementation, monitoring and evaluation of economic strengthening programs,” which are equally important for the development of programs for the socioeconomic inclusion of all landmine/ERW survivors.<sup>10</sup>

Children with disabilities are disproportionately vulnerable to discrimination, abuse, exploitation, neglect and violence.<sup>11</sup> Linking child survivors with child-protection programs and





Monica and Luis, both 14, sit together during a weekend retreat for children with disabilities, outside Bogotá, Colombia (2004). Monica lost one foot when her younger cousin brought a grenade home. The grenade exploded, killing the cousin and injuring Monica. Luis was told he was born with one foot, but social workers suspect it was amputated following a war-related injury. Photo courtesy of UNICEF/NYHQ2004-0793/Donna DeCesare.

services helps to prevent and respond to these threats. While the protection sector addresses challenges to the protection of human rights more generally, child protection specifically focuses on efforts to prevent and respond to abuse, exploitation and neglect of children. The protection of child rights more generally is the responsibility of all actors implementing a human rights-based approach.

By and large, social support for vulnerable children is considered to be a broader protection intervention and not specific to child protection. Meanwhile, social work services and case management for vulnerable children, including referral to necessary services in various sectors, is a key area of child-protection programming. Recreational, cultural, social and arts-based activities, informal education, and life skills, including activities implemented through child-friendly spaces,

are considered psychosocial and community-based child-protection interventions. Linking survivor assistance with child protection services can ensure that assistance is age appropriate and can reduce the risks of violence, abuse and exploitation of children with disabilities, while also promoting their social inclusion.

#### **Cross-cutting Considerations**

In order to identify and respond to the needs of child survivors effectively, children must participate in all stages of the survivor assistance program cycle, from needs assessment to evaluation. Child-sensitive survivor assistance requires a life-cycle approach that considers the distinct physical, cognitive and emotional needs of children of different ages. Gender and social expectations of girls and boys must be considered and addressed. In certain contexts, girls are less likely than





Ahmed laughs at home in the village of Khan Arnaba, Syria. Ahmed was severely injured by a landmine in the village and recently lost the sight in both of his eyes.

*Photo courtesy of UNICEF/NYHQ2006-0817/Shehzad Noorani.*

boys to receive assistance as a result of gender discrimination, lack of service providers and other gender-related factors. Less visible disabilities, such as visual or hearing impairments, must also receive adequate attention.

Few countries affected by landmines and ERW have adequate health, rehabilitation, social welfare and other survivor assistance-related systems that can meet the gender- and age-specific needs of child survivors. A nondiscriminatory approach addresses the needs of all children with disabilities, requiring that assistance not distinguish between survivors of ERW

and those requiring services for other reasons (e.g., due to injury or disability from a traffic accident). Within this general framework, and that of the CRPD, long-term commitment, investment and capacity building are required for the mine action community to provide age- and gender-sensitive survivor assistance. ©

*See endnotes page 64*



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# Masculinity: The Unseen Barrier in Survivor Assistance

Survivors of landmine and explosive remnants of war (ERW) incidents suffer unique consequences from their injuries as a result of their age and gender. As they often have distinct societal roles, survivor assistance needs for women, girls, boys and men differ. Inadequate research on the effects of mine/ERW incidents on men and boys may hinder recovery for male survivors and their families and communities.

by Anne-Sophie Duprat and Lusía Peçak [ Gender in Mine Action Programme ]



Finding ways to adapt to disabilities is part of recovery.  
Photo courtesy of Jorge Henao.

As direct or indirect victims of landmine and explosive remnants of war (ERW) incidents, women and girls face more difficulties than men and boys when accessing medical treatment, psychological care and assistance, rehabilitation, socioeconomic assistance and risk education.<sup>1</sup> This disparity in access receives much attention while the effects of mine/ERW incidents on male survivors are rarely studied.

Mine/ERW incidents have unique psychological impacts on male survivors, economic consequences on men and boys and their families, and affect male masculinity (i.e., perceived notions and ideals about how men and boys should behave in a given setting).<sup>2</sup> As a result of this, examining the gendered dimensions of survivor assistance and identifying gaps in current services provided is as important for male survivors as it is for female survivors.

## Exposure to Mine/ERW Risk

Men represent the majority of mine/ERW victims (up to 85–90 percent in some countries), and boys constitute an estimated 90 percent or more of child victims.<sup>3,4</sup> In many countries, men and boys have greater mobility than women and girls due to the gendered division of labor that places men and boys at greater risk of suffering landmine/ERW incidents. Men and boys are more likely to be involved in heavy agricultural work such as plowing and scrap-metal collection, where mine/ERW encounters are more likely.<sup>5,6</sup> Natural curiosity may lead boys to stray from safe paths to explore their surroundings. Their daily activities, including animal herding in pastoral communities or playing in fields, can expose them to unknown and potentially risky areas.<sup>7</sup> Furthermore, anecdotal evidence suggests that males pay less attention than females to



A young boy is able to play with friends again following rehabilitation.  
Photo courtesy of Paul Jeffrey.

indications of unsafe areas.<sup>8</sup> The Gender and Mine Action Programme's (GMAP) work in South Sudan shows that men with current or previous affiliations with the armed forces do not fear mines/ERW, which can increase risk-taking behaviors.<sup>9</sup>

### Consequences of Male Disabilities

The consequences of mine/ERW incidents for males and their families are economic and psychological. In many countries, when the family loses a primary source of income, the wife becomes responsible for providing for the family in addition to her domestic duties. The survivor's children might also withdraw from formal education to support the family. Very often girls assume domestic duties and become responsible for caring for injured family members, whereas boys might become responsible for the family's economic activities.

Disability perceptions may intensify with gender—women may feel a sense of intensified passivity and helplessness; men may feel a corrupted masculinity generated by forced dependence.<sup>10</sup> As men are more often responsible for income-generating activities, they tend to suffer psychologically from an inability to provide financial security for their families.<sup>5</sup> In cases where male survivors can no longer support their families, feelings of powerlessness, sadness, anger and inadequacy may emerge. One organization working with landmine survivors in Colombia stated that injured men tend

to suffer from depression and aggressiveness, in some cases becoming violent toward women.<sup>5</sup> Some victim-assistance operators have informally reported that the issue of sexuality and disability is a concern for survivors, and the issue was not addressed due to its sensitive nature and cultural taboos against talking openly about sexuality. Moreover, gender stereotypes are sometimes used to characterize people with disabilities: Men are presented as feminine in the absence of masculine traits.

When people experience disabling events later in life, such as landmine incidents, the sudden, dramatic change in status creates major conflicts in their expectations and self-image, which public perceptions reinforce. With masculinity challenged, men struggle to sustain affirmed identities. Even though it is more common for a woman to be abandoned by her husband if she develops a disability later in life, the opposite also occurs. During a GMAP training on victim assistance, male survivors in Senegal reported cases in which an able-bodied wife left her disabled husband if he could no longer fulfill his role as provider. This further isolates and stigmatizes the abandoned spouse. Interviews of 14 mine action organizations in Lebanon concluded that some men may experience severe psychological effects from a disabling injury. They find it very difficult to accept their new life circumstances, taking





Recovery requires hard work and patience for both the survivor and family.  
*Photo courtesy of Jerome Muller.*

sometimes more than 20 years to achieve full psychological recovery and adaptation to new physical conditions.<sup>5</sup> Male survivors are often reluctant to look for psychological support and counseling, as their families and communities could perceive this as a weakness.

After analyzing the discourse and policies of victim assistance organizations, the Geneva International Centre for Humanitarian Demining found that most programs tend to categorize boys and girls as children, considering them a vulnerable group along with women. However, by labeling children as a homogenous group, these programs might overlook the difference between boys' and girls' exposure to mine/ERW risks, as well as their respective needs and the consequences that disability can have on them and their families. For a boy, a disability can be perceived as a loss for the family, who might rely on his capacity to provide for them when his father is unable to work. As a result, boys may suffer psychologically due to the perception that they cannot conform to the mascu-

line model and perform the often essential male roles of providing for a family, marrying and producing children. They may also feel rejected by their peers if they are unable to participate in physical activities or collective sports like football (soccer), which is often an opportunity for boys to socialize with their peers through the demonstration of their physical capacity.

#### **Adapting Assistance Services for Male Survivors**

For nondiscriminatory and inclusive survivor assistance, service providers must recognize that mine/ERW contamination affects men and boys in specific ways. Victim assistance operators need to ensure that their services are adequately designed and address the distinct needs and realities of male survivors. In addition to medical care and rehabilitation, livelihood projects can help male survivors regain a sense of autonomy and dignity, allowing them to generate income to contribute to their families' resources. Such

projects may include microfinance service assistance, vocational trainings and business-management skills, as suggested by the success of Handicap International's Cambodia project, Towards Sustainable Income Generating Activities for Mine Victim and Other Persons with Disabilities in Cambodia. This project helps mine/ERW survivors and others with disabilities define and realize income-generating projects according to their own priorities.

Psychosocial support for survivors and their families is also essential to ensuring that trauma experienced by men and boys is understood by their families, communities and service providers alike. Some operators offer sports activities such as sitting volleyball, wheelchair basketball, and football (soccer) with crutches or prosthetic limbs, etc. At the risk of perpetuating gender stereotypes, these activities are mainly male-oriented, and women are often directed toward home-based activities. However, these activities can have a positive effect on survivors' perception of their masculinity, which can improve their strength and mobility while boosting self-esteem and community involvement. For example, through its summer rehabilitation camps, the Tajikistan Mine Action Centre noted that sports activities and art therapy contributed to lower levels of aggressiveness and anxiety in male survivors, improving their ability to communicate their feelings and emotions.<sup>11</sup>

### Conclusions and Recommendations

While conducting research for this article, a significant gap in literature on the specific needs of male survivors in all age categories became apparent, making it difficult to formulate clear recommendations on how to best service their needs. Depending on cultural contexts, a number of issues relating to survivors' perceptions of vulnerabil-

ity and decreased masculinity might be overlooked and neglected, hindering the recovery process and making assistance services ineffective.

Gender analysis is needed to identify and address the needs of all survivors. Medical and survivor assistance staff should be sensitive to gender issues and should receive specific training to effectively address potential gender-related obstacles. Further research and analysis should be conducted on male survivors' participation in victim assistance programs, masculinity and construction of alternative masculinity models, as well as possible linkages between mine injuries and aggressive behavior, including domestic violence in certain contexts. ©

*See endnotes page 65*



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# Rehabilitation for Gazan Children and Young Adults

Years of conflict in the Gaza Strip have killed and injured thousands. In response to the need for survivor rehabilitation, Slovenia's ITF Enhancing Human Security and the University Rehabilitation Institute of the Republic of Slovenia (URI Soča) initiated the Gaza Project, a rehabilitation program for injured children and young adults. Since the Gaza Project's inception in 2009, more than 300 children and young adults were medically evaluated, 100 children and young adults received treatment and 18 local medical professionals were trained at URI Soča.

by Nataša Uršič and Goran Gačnik [ ITF Enhancing Human Security ]



Rehabilitation of a child from the Gaza Strip at URI Soča.  
Photo courtesy of Arne Hodalič.

The 22-day Israel-Gaza conflict in the Gaza Strip (27 December 2008–18 January 2009) killed 1,300 and injured more than 5,300 Palestinians, and killed three and injured 182 Israelis. The conflict caused extensive damage to commercial enterprises, public infrastructure and agriculture.<sup>1</sup> Additionally, the eight days of conflict in November 2012 left more than 160 Palestinians dead (43 children) and more than 1,200 injured.<sup>2</sup> The hostilities also had substantial

emotional and psychological effects on the population. Today, Gaza's population of about 1.76 million lives in overcrowded conditions, with poor housing and deteriorating infrastructure, and 43.5 percent of the population is age 14 or younger.<sup>3,4</sup>

According to the U.N. Office for the Coordination of Humanitarian Affairs, "humanitarian organizations are re-establishing basic services, including water, health, food, cash assistance, education and psychosocial support. Work has already begun on conducting repairs to shelters, water and sanitation systems, health facilities and other essential infrastructure."<sup>5</sup> ITF Enhancing Human Security's (ITF) work with these organizations provides it with important statistical data and logistical information that aids patient rehabilitation. The plan is to keep working in the Palestinian territories until Palestinians have adequate capacity to provide rehabilitation services themselves.

## Disability and Rehabilitation in the Gaza Strip

Roughly half of the Palestinians injured as a result of the Israel-Gaza conflict were women and children, 15 percent of whom became disabled from their injuries. Additionally, 1,269 people, 431 of whom were children, were injured during the November 2012 conflict.<sup>6</sup> According to general estimations by the World Health Organization, 7–10 percent of any given population in the world has some kind of disability; in the Palestinian territories, this suggests that the figure is around 280,000–400,000 people.<sup>7</sup> Their needs are significant, as the Gaza Strip has only one rehabilitation hospital, Al-Wafa, which was damaged during the 22-day conflict.<sup>8</sup>

Currently the Al-Wafa, Al-Shifa and Al-Fata hospitals in the Gaza Strip perform surgical operations. Only



one prosthetic workshop, the Artificial Limbs and Polio Center (ALPC), produces lower-limb prostheses. In addition, the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) has seven outpatient clinics providing medical services to residents of the Gaza Strip. Besides ALPC and UNRWA, local rehabilitation societies also provide basic services to patients, mostly related to home visits (i.e., physiotherapy, adaptation of homes and accessibility). Jabalia Rehabilitation Society, National Society for Rehabilitation Care, Society of Physically Handicapped People, Association for the Injured, Sanabel Asthma Energy and the Blind Society all provide these types of services.

In addition to the lack of medical resources, disabled people in the Gaza Strip face professional and social discrimination. Although attitudes toward persons with disabilities injured in the First Intifada, a 1987 uprising among Gaza Strip Palestinians, are less discriminatory (those individuals are commonly regarded as heroes by other Palestinians), most persons with disabilities in Gaza generally face discrimination on a daily basis. People with multiple or hidden disabilities (for example, a physical impairment combined with an intellectual impairment), disabled women, and mothers of disabled children often face harsher discrimination. Restrictions of movement at security checkpoints pose particular challenges for people with limited mobility (wheelchair users, people on crutches), intellectual impairments and visual disabilities.



Medical triage in the Gaza Strip.  
*Photo courtesy of the ITF.*

Although physical- and mental-rehabilitation systems have developed in recent years in the Gaza Strip, many injured persons, especially children, cannot access proper medical treatment and devices because of lack of money, long waiting lists and political problems.

#### The Gaza Project

The former President of the Republic of Slovenia, Dr. Danilo Türk, visited Ramallah, in the Palestinian territories on 30 January 2009, where he met with Palestinian Authority President Mahmoud Abbas and former Prime Minister of the Palestinian National Authority, Salam Fayyad. They discussed the humanitarian needs in the Gaza Strip and possibilities for Slovenia to provide meaningful and targeted humanitarian assistance. Through the International Trust Fund (ITF), more than US\$2 million was raised for the Gaza Project, a project that finds ways to help children and young adults in the Gaza Strip obtain the treatment they need.

Following these meetings, ITF, in cooperation with their implementing partner University Rehabilitation

Institute Republic of Slovenia (URI Soča), developed Gaza-specific projects that included physical and mental rehabilitation and local capacity building. ITF also cooperated with local organizations in the Gaza Strip, including ALPC, UNRWA, the Palestinian Trauma Center, Martyrs and Casualties Families Care Association, and the Assalama Charitable Society, to help identify children and young adults needing immediate treatment. ITF, in close cooperation with the Ministry of Foreign Affairs of the Republic of Slovenia, Slovenian embassies in Israel and Egypt, and the Representative Office of the Republic of Slovenia to the Palestinian National Authority in Ramallah, enabled the safe transportation of Gazan children to Slovenia for treatment and rehabilitation.

On 10 June 2009, the first group of 21 children, selected for injuries that could not be successfully treated in the Gaza Strip, arrived at URI Soča. The URI Soča medical team examined the selected children. Eleven children were missing one or more limbs for a total of 16 amputations: seven transtibial

amputations, five transfemoral amputations and four upper-limb amputations. Three children suffered from severe traumatic brain injury, three from spinal cord injury, three from peripheral nerve and soft tissue lesions, and one from congenital hip-development disorder.

Since the program's inception in 2009, the URI Soča medical team evaluated 300 children and young adults, aged seven months to 22 years in the Gaza Strip. Of these, 100 were admitted into the one-month rehabilitation program at URI Soča. After admission, the patients underwent a thorough examination by a medical team consisting of a medical doctor, physical and rehabilitation specialist, nurse, physiotherapist, occupational therapist, medical technician and in some cases a psychologist, neurologist and an internist. Rehabilitation goals and individual rehabilitation plans were designed for each patient.

These plans included the necessary physiotherapy, occupational therapy, and fitting of prostheses and orthoses as well as other technical devices, such as powered wheelchairs, orthopedic shoes, crutches, walkers, therapeutic tricycles, standers and lumbar-support belts. During rehabilitation, further diagnostics were performed, including electromyography, X-ray and examination by consultants at the University Medical Center in Ljubljana, Slovenia. Rehabilitation plans and goals were adjusted according to new diagnostic data. The patients' health was monitored by the physical-medicine and rehabilitation-specialist physician on duty, a registered nurse and a medical technician.

The prosthetic and orthosis technicians were responsible for the production, testing and fitting of the medical aids, such as lower and upper limb prostheses and knee, ankle and foot orthoses. In some cases (especially with children less

than eight years old) parents traveled to the rehabilitation program in Slovenia with their children. Parents and their children were educated about how to use and maintain the medical aids during rehabilitation treatment in Slovenia. Technicians in rehabilitation engineering worked on the application of other medical aids such as individually adjusted wheelchairs, walkers and other devices to help the patients with daily activities in their living environment.

Besides the regular rehabilitative program, the children participated in other information-sharing activities presented by a psychologist and a group of volunteers. Children also went on several trips to Slovenian tourist sites, including Postojna Cave, Lake Bled, and the Adriatic Sea. In the afternoon, they exchanged knowledge about Arabic and Slovenian cultures with Slovenian volunteers in various workshops. The children also enjoyed the cooking lessons in which they prepared traditional Slovenian dishes.

Two to three Gazan medical and rehabilitation professionals escorted each group of patients to Slovenia for treatment, where they also received training. In total, 18 doctors, physiotherapists, occupational therapists, nurses and

### Case Study From the Gaza Project: Jamila Alhabbash's Story



Jamila.

Photo courtesy of Arne Hodalič and Jaber El Masrey.

Jamila was born in the Gaza Strip. She dreamed about her future and a career in journalism. On 4 January 2009 she was on a roof feeding doves with her sister Shatha, brother Mohamed, and cousins Isra and Mahmoud when a rocket struck—killing Shatha and Isra. Mohamed lost one leg. Jamila was severely injured and had both legs amputated above the knees.

Jamila was in a coma for a week. When she woke, the doctor told her that she lost both legs but would recover. In those first moments, she did not feel that she had lost parts of her body and did not understand what it is like to depend on a wheelchair for mobility. Throughout her recovery, she continued to dream about being a journalist.

ITF/URI Soča invited Jamila to participate in 2009 in the one-month rehabilitation program. She went through intensive medical rehabilitation including physiotherapy and occupational therapy. URI Soča fitted her with sophisticated, active above-knee prostheses. Jamila was also equipped with a wheelchair and crutches. Naturally, as Jamila grew, she had to be fitted with new prostheses. She attended the rehabilitation at URI Soča for a second time, as she was included in the ninth group in October 2012, when she received additional physiotherapy and was equipped with new prostheses.

Following proper rehabilitation and fitting with quality prostheses, Jamila enrolled in Al-Aqsa University to study journalism. Now she is undergoing field training with the Ma'an News Agency and has an opportunity to fulfill her life-long ambition.



Rehabilitation at URI Soča.  
Photo courtesy of Arne Hodalič.


social workers from the Gaza Strip were trained at URI Soča since 2009. Each professional has a training program specific to his or her field. An important part of the program was training received on the job; the professionals performed medical procedures on the Gazan patients, which allowed for more direct, personal experiences. The newly trained professionals generally continued to work with the same patients throughout their treatment.

Jaber El Masry, the ITF coordinator for the Gaza Project, travels to Gaza twice a year for two weeks at a time to implement post-rehabilitation evaluations and checkups on the ground in the Gaza Strip.

#### ITF's Future Plans

ITF is planning to bring an additional group of seven children to Slovenia for treatment at URI Soča in autumn 2013. Two rehabilitation specialists will travel with the children to Slovenia to attend rehabilitation training.

Subject to the availability of funds, ITF plans to continue its presence in the Gaza Strip with the following projects: (1) the psychosocial project, "Rapid Re-

sponse and Rehabilitation Programme: R3 (Family Therapy) to care for war victims in the Gaza Strip," in conjunction with the Palestine Trauma Center, which provides psychosocial aid for victims of continuous siege and recent conflicts, and (2) training of local rehabilitation specialists, a continuation of the Gaza Project, in the Gaza Strip by experts from URI Soča. 

*The following donors generously supported the Gaza Project through ITF: the Czech Republic, Principality of Monaco, Qatar, Slovenia, South Korea, the Office of Weapons Removal and Abatement in the U.S. Department of State's Bureau of Political-Military Affairs (PM/WRA), Danilo Türk Foundation "Pustimo jim sanje," KFB Holding Group, OPEC Fund for International Development, Rotary Club Portorož, Swedish International Development Cooperation Agency, Amr Moussa (Former Secretary General of the Arab League), Davorin Počivalšek and in-kind support by Airport Ljubljana d.d., City of Ljubljana, Jordan Aviation, Petrol d.d. and Postojnska jama d.d.*

*See endnotes page 65*



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Goran Gačnik has worked at ITF since its establishment in 1998. He started his tenure at ITF as assistant director and currently serves as ITF's deputy director. He has cooperated in the establishment of some of the mine-action centers and related regional bodies in South East Europe and the Caucasus. He is a graduate of the National Military Academy Belgrade (Serbia).

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# Demining Quality Management: Case Studies from Jordan

Two case studies of clearance in the Jordan Valley and along Jordan's northern border highlight the importance of quality management to ensure efficiency of clearance and credibility of land release.

by Jamal Odibat [ National Committee for Demining and Rehabilitation ]



Quality control inspection of cleared land in the Jordan Valley.  
*All photos courtesy of NCDR quality management team.*

The aim of quality management (QM) in the survey and clearance of mine-contaminated areas is to provide beneficiaries, demining organizations and national authorities with confidence that land release is in accordance with agreed-upon standards.<sup>1</sup> Other goals of QM include ensuring the safety of deminers while working and providing assurances that released land is safe to use. Quality assurance (QA) and quality control (QC) comprise QM with the intention of achieving consistent quality throughout the entire operation. Specifically, QA is conducted by assessing that the process is followed, whereas QC is performed by physically checking the finished product.

The purpose of QA is to confirm that management practices and operational procedures are appropriate, applied correctly and capable of safely and efficiently achieving the stated require-

ments. Internal QA is conducted by survey and clearance organizations, while external QC inspections are undertaken by national mine action authorities or other contracted agencies.

QA includes

- Assurance that equipment, including mechanical and organic demining assets, functions properly and operates according to agreed-upon standards
- Monitoring of survey and clearance teams during operations to ensure that procedures are followed
- Accreditation of the clearance organization and assets
- Review of documentation to ensure that records are maintained per agreement

QC relates to the inspection of a finished product, which normally involves taking samples of previously cleared land to validate that the work meets the contractual standard. External QC takes place when a task is complete and is conducted through sampling by national mine action authorities or other contracted agencies. External sampling is a particularly expensive way to ensure quality and should be kept to a minimum. Internal QC takes place simultaneously when survey and clearance organizations are conducting clearance. For instance, immediately after the confirmed hazardous area has been cleared, the demining organization follows its clearance efforts with a manual inspection of the cleared land, taking samples to provide confidence that the clearance requirements have been met.

QM, which consists of monitoring the clearance process (QA) and sampling of the cleared areas (QC), is a legally bound component of all demining operations in Jordan as stipulated by the National Technical Standards and Guidelines that Jordan adopted in 2006.<sup>2</sup>

A comparison of clearance projects in the Jordan Valley and along Jordan's northern border reveals the importance of timely QM. QM instills confidence and trust in the work



Quality assurance checking of the clearance process in Jaber, along the northern border of Jordan.

being accomplished, which extends to end users. Factors reviewed in the case studies include

- Are the processes' results predictable?
- Is the land free of mine and explosive remnants of war (ERW) contamination, so that it can be released to users?
- What are the effects of quality management, or the lack of quality management, on clearance efficiency and land release credibility?

#### Jordan Valley Project

The Jordan Valley region, located in the northwest along Jordan's border with Israel, experienced landmine and unexploded ordnance (UXO) contamination due to Jordan's participation in the 1948 and 1967 Arab-Israeli Wars.<sup>3</sup> Despite this pollution, the area serves as the country's main source of food security. With its fertile land and favorable climate, Jordan exports large amounts of produce year round, and the country has great potential for agricultural and economic development.

The Jordan Valley contained a total of 266 minefields, covering 12.5 million sq m (4.83 sq mi) with 95,500 mines. The Royal Engineering Corps (REC) cleared all the minefields between 1993 and 2007. However, in the past few years, most mine-related incidents in the Jordan Valley took place adjacent to former minefields or in areas previously cleared and declared mine-free by REC. In 2007 and 2008, two mine accidents occurred with casualties, prompting the National Committee for Demining and Rehabilitation (NCDR) to return to

the Jordan Valley for another QM verification project. Since 24 April 2012 when Jordan was declared minefield-free, two vehicles set off anti-personnel (AP) mines, but the accidents resulted in no human casualties.

The conditions faced during the 14-year clearance efforts were as follows

- Difficult terrain with high vegetation
- High temperatures during the summer season
- Long distances between minefields, distributed along 150 km (93 mi) from the Jordan riversides to the mountains in the Jordan Valley

In addition, clearance was conducted without QM, and variable working resources (i.e., different types of mechanical minesweepers or detectors) were used for clearance. Since QM was omitted from the project, accidents occurred after clearance and credibility was lost. Although cleared, the land was not released to the end users, and NCDR could not proceed with the land-release process. NCDR performed a risk assessment (non-technical survey), which led to a verification and sampling project (Phase II) in 2009 supported by the European Commission and the governments of Belgium, Germany and the U.S.<sup>4</sup>

Although ongoing, Phase II is expected to finish by the end of 2014. NCDR cannot confidently release the land until samples of 25 percent of the cleared area verify that the land was successfully cleared. The areas needing verification are typically previously cleared minefields as well as the surrounding areas where mines possibly shifted out of place. The percentage

of sampling depends on the type of asset used (manual, mechanical or mine-detection dog) and the expected threat level. While no international standard for verification exists, Jordan checks 25 percent of the cleared area as the minimum percentage to be sampled. If a hazardous item is found, the sample area increases, potentially covering up to 75 percent of the area. If QM had been initially implemented, this operation would be unnecessary, as the areas would have been monitored during clearance and sampled after completion.

The cost of the sampling and verification project is expected to reach nearly 60 percent of the original clearance cost. By its conclusion, when NCDR can confidently release the land, it will have also reached 60 percent of the original clearance time. In the Jordan Valley, 27 suspected hazardous areas with a total area amounting to 9.7 million sq m (3.75 sq mi) were verified with 6 million sq m (2.3 sq mi) remaining. More than 2,200 mines, mine fuzes and UXO were found and destroyed during Phase II.

### Northern Border

Landmine and UXO contamination on Jordan's northern border primarily derives from Syria's involvement in the Jordanian Civil War in 1970.<sup>3</sup> The Northern Border Mine Clearance Project (NBP), initiated in April 2008, consists of 93 minefields containing both AP and anti-tank mines. NBP forms a 104 km (65 mi) belt along the northern border that covers a total area of 10.5 million sq m (4 sq mi). For this project, Norwegian People's Aid (NPA) executes the mine-clearance component, and REC's Explosive Ordnance Disposal Team is responsible for the destruction of landmines and other ERW identified within the project area. NCDR is implementing the project and carries out QM, reporting and clearance certification. NCDR

also liaises with the project's stakeholders, which include NPA, the United Nations Development Programme and the Canadian government.<sup>5</sup>

Although Jordan was declared minefield-free in April 2012, NCDR is continuing its search along Jordan's northern border for landmines that either exploded or shifted due to flooding and erosion. However, Syria's instability is delaying this verification process, throwing into question the project's final completion date.<sup>6</sup>

In the NBP, NCDR's QM team's duties include monitoring and evaluating land-release activities. Monitoring and evaluation are essential to releasing land confidently to landowners.

In general, time delay due to quality assurance during clearance operations is very minimal. Following clearance with QA, during subsequent QC, one of 10 lots may fail and need verification again. This causes a delay 10 percent of the time. Experience suggests that no more than 10 percent of areas fail during QC. Thus the total time for clearance with QM, which leads to high credibility and confidence, is 110 percent when compared to the time required solely for clearance. Cost for QM operations is also 10 percent of the clearance cost. Thus, the total time to finish this project (clearance accompanied with QM) is 110 percent of clearance time, and the cost is 110 percent of the clearance cost.

On the other hand, if external QM is required at a later date, both cost and time increase. These increases can be as much as 60 percent of the original clearance figures.

### Conclusion

QM ensures that the best demining practices are employed in the field and that the cleared land is physically checked and approved for land release.

By not conducting the necessary QM activities during the initial clearance phase, NCDR lost time and vital resources while incurring additional expenses and hurting its own credibility. Additionally, the lack of verification endangered the lives of Jordanian citizens. As NCDR proceeds with the verification process, it will continue evaluating both projects; it is apparent, however, that when conducted correctly, the application of QM activities accompanied with demining operations saves time and money. ©

*See endnotes page 65*



Jamal Odibat is a quality management officer at the National Committee for Demining and Rehabilitation in Jordan and has worked at the organization for more than 15 years. He participated in drawing up Jordan's national standards in mine action in English and Arabic in accordance with the International Mine Action Standards. He currently serves as reporting officer for Jordan's monitoring and evaluation projects. He holds a master's in computer engineering from Yarmouk University (Jordan) and completed specialist mine action courses including grant writing, finance and training.

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# News Brief

## Military Ordnance Found on U.S. Shores

~ Julie Stern, CISR staff

A World War II (WWII) bomb was detonated 25 June 2013 after it washed ashore on Assateague Island National Seashore, Maryland, U.S.<sup>1</sup> The U.S. Army Corps of Engineers surveyed the beach for two days, turning up more than 100 inert pieces of ordnance.<sup>2</sup>

On the same day a resident of Bay Head, New Jersey, U.S., located a partially buried WWII, German contact mine that was about 3 m (10 ft) from the shore.<sup>3</sup> As a safety precaution, 15 nearby homes were evacuated, and the U.S. Coast Guard prevented boats from entering the area. Assateague Island and Bay Head were closed while the areas were combed with radar equipment, reopening after explosive ordnance disposal teams destroyed the munitions and the areas were deemed safe.<sup>1,4</sup>

This is not the first time ordnance has washed up on U.S. shores—park rangers say it is “surprisingly common.”<sup>5</sup> Ordnance has washed ashore in at least 11 coastline states. During the world wars, the U.S. military tested explosives at Aberdeen Proving Ground, Maryland; Sandy Hook Proving Ground, New Jersey; and proving grounds in Arizona, California, Illinois, Indiana, Massachusetts and Ohio.<sup>6</sup>

The military discarded munitions in the Gulf of Mexico and Atlantic and Pacific Oceans, mostly from the years 1943–1947. Dumping sites for unused bombs were only 97 to 161 km (60 to 100 mi) offshore. At the time, many countries practiced offshore dumping of munitions.



The explosive ordnance disposal team from the U.S. Army's Aberdeen Proving Ground detonates the World War II bomb off the shore of Assateague Island, Maryland (U.S.).

*Photo courtesy of Maryland Coast Dispatch.*

Army records of U.S. dump sites are vague, missing or were destroyed.<sup>7</sup> The Defense Environmental Programs 2009 Annual Report to Congress listed military munition sea disposal locations in the U.S. from 1917–1970: 26 dump sites in the northeast, 17 in the southeast, 9 in the west, and 20 near Alaska and Hawaii.<sup>8</sup> The U.S. Department of Defense prohibited the dumping of unexploded ordnance in U.S. coastal waters in 1970. Congress passed the Marine Protection, Research and Sanctuaries Act in 1972, banning the marine disposal of any material that would unreasonably harm humans or the environment.<sup>9</sup>

According to combined research by Texas A&M University oceanographers William Bryant and Niall Slowey, and researcher Mike Kemp, more than 31 million pounds (14,061 tonnes) of bombs are dispersed in the Gulf of Mexico and along the coasts

of at least 16 U.S. states.<sup>9,10</sup> While “potentially dangerous,” not all ordnance are highly explosive; National Park Service (NPS) files at Assateague Island assert that the test rockets buried off the coast “only carried sufficient explosives to detonate a smoke bomb”<sup>14</sup>

Munitions are shifting closer to the shoreline as Maryland and New Jersey experience soil erosion, which constantly changes the landscape along the coast. Therefore more ordnance will likely be discovered in the future.<sup>2,11</sup>

*See endnotes page 67*

# Aiding Survivors of the Syrian Crisis

Handicap International (HI) launched operations in northern Syria in December 2012, where it provides postsurgical rehabilitation to survivors of violence. In Lebanon and Jordan, where the organization has worked since the summer of 2012, HI provides assistance to Syrian refugees, placing particular focus on people with disabling injuries.

by Elizabeth MacNairn and Molly Feltner [ Handicap International ]

**H**andicap International (HI) was originally founded in 1982 to rehabilitate landmine survivors from the war in Cambodia. Veteran HI staff members returning from recent missions in the region report that the war in Syria is the most brutal conflict they have experienced due to the extreme level of violence directed toward civilians and the extent of the survivors' physical and mental suffering.<sup>1</sup>

"What's going on in Syria right now is disastrous—you can't imagine just how bad it really is," said Guillaume Woehling, who served as HI's head of mission in Syria from December 2012 to February 2013. "The day-to-day fighting is horrifically violent and taking place in residential areas. When the conflict ends and we're finally able to venture into the hardest-hit areas, I think we're going to make some truly appalling discoveries. It will take years to help the Syrian people recover."

The lack of security, the limited availability of humanitarian resources in Syria and the extent of the survivor's needs has created an exceptionally challenging working environment.

## Assistance in Syria

Working in three makeshift hospitals in northeast Syria, HI provides postsurgical emergency rehabilitation with support from numerous organizations.<sup>2</sup> From these locations, staff members observed the crisis firsthand and collected testimonies from survivors and their families.<sup>3</sup>

Widespread media reports allege that daily air strikes, bombings and sniper attacks specifically target civilians and civilian buildings, including hospitals. Many doctors have been killed or forced to flee during the fighting.<sup>4</sup> HI has found that some medical staff remaining in this region operate out of makeshift underground facilities where they have few resources to cope with the daily influx of injured people. Most doctors and nurses staffing



An HI physiotherapist in Jordan works with 7-year-old Ammar, who lost his arm and leg in a bombing.  
*Photos courtesy of Brice Blondel and Handicap International.*

these emergency centers work voluntarily and, in order to save lives, many perform surgeries and other procedures that are beyond their skill level.

Although the seriously injured require extended hospital stays to recover properly, most are discharged after two or three days to free up beds for new arrivals. Other survivors who arrive with injuries that are not immediately life-threatening may be turned away completely. In both instances, without proper follow-up care or rehabilitation, the injured can develop permanent or more severe disabilities as well as infections, including gangrene, some of which necessitate the amputation of limbs or digits.

HI provides assistance to these survivors as well as to Syrians with disabilities unrelated to the war, as local rehabilitation services no longer exist. The majority of beneficiaries HI works with in Syria were injured during the conflict. About a quarter of the total beneficiaries are children under the age of 12.



Staff estimate that bullets cause roughly half of the injuries. Sniper victims include women, young children and the elderly. Explosives, shrapnel or rubble falling on victims during bombings cause other injuries. The injured may have paralyses from spinal-cord injuries, multiple amputations, complex fractures, and nervous or vascular system damage due to deep wounds.

"The injured people we're working with have been destroyed physically and psychologically," said Diana Hiscock, a physical therapist who returned from Syria in February 2013.<sup>5</sup> "Almost all of them have been injured in an explosion or an attack that cost the lives of one of their relatives."

At least one injured patient, a woman who had both legs amputated, reported that she had stepped on a landmine.<sup>6</sup> However, due to the lack of security, HI could not carry out an evaluation to confirm this. In November 2012, Human Rights Watch reported the use of cluster munitions in Syria.<sup>7</sup>

Rehabilitation is imperative to helping survivors gain mobility and strength. At the clinics where HI operates, beneficiaries are case-managed and receive physical therapy and mobility aids, like wheelchairs and crutches, based on their individual needs. Because of the region's constantly changing situation, many beneficiaries relocate before completing a full course of physical therapy. Thus, HI staff train the family members and friends of beneficiaries to perform basic rehabilitation exercises.

In general, humanitarian aid is in extremely short supply in this part of northern Syria, and many people with injuries or disabilities receive inadequate or no support.<sup>3</sup> Often not physically able to access the scant resources available or to flee, the most vulnerable victims of the conflict face a seemingly impossible situation.

### Helping Refugees in Jordan and Lebanon

In a speech before the U.N. Security Council on 16 July 2013, the U.N. High Commissioner for Refugees (UNHCR), Antonio Guterres, said that in 2013, an average of 6,000 people flee Syria every day, a rate not seen since the 1994 Rwandan genocide. He reported that since the conflict began, the U.N. registered 600,000 refugees



A prosthetist-orthotist from a local partner of HI in Jordan prepares an orthosis.

*Photo courtesy of Gwenn Dubourthomieu and Handicap International.*

in Lebanon; 160,000 in Iraq; 90,000 in Egypt; and one million in Jordan and Turkey. Of these, two-thirds left Syria in 2013, indicating a serious deterioration of conditions inside the country.<sup>8</sup>

While staggering, these estimates only include refugees who officially registered with UNHCR. The actual number of people who fled Syria may be considerably higher, as some Syrians have not registered, and citizens of neighboring countries who lived inside Syria and returned to their home country are not eligible for refugee status.<sup>9,10</sup>

Beginning in the summer of 2012, HI set up permanent and mobile disability and vulnerability focal points in the Bekaa Valley, northern Lebanon and along Jordan's northwest border to provide





An HI physiotherapist performs exercises with a Syrian woman in Lebanon.  
*Photo courtesy of Gwenn Dubourthoumieu and Handicap International.*

assistance to the most vulnerable refugees, including those with physical or mental disabilities, limited mobility, illness, and those who are pregnant.

Early in the conflict, most people arriving in Jordan and Lebanon planned their departure and could bring some money and belongings with them. However, as the fighting intensified, staff members found more people fleeing with few or no possessions—arriving completely destitute. Many lost family members and had their homes destroyed. The number of new refugees suffering from severe injuries and mental trauma is also increasing. Staff estimate that about 20 percent of HI beneficiaries in Lebanon and 50 percent of beneficiaries in Jordan suffer from injuries directly related to the conflict.

In any refugee or displacement setting, persons with disabilities (PWD) or disabling injuries are among the most at-risk members of the population. They have greater needs than other groups but are often the least able to access aid. Beyond physical and mental limitations, they often face direct discrimination and exploitation.<sup>11</sup>

Delivering aid and services is particularly challenging in Lebanon and Jordan, as most refugees live scattered

between small apartments and makeshift shelters rather than in refugee camps. HI's mobile teams, which include physical therapists and psychosocial specialists, travel between locations to identify those most in need of humanitarian assistance. HI's services include fitting and distributing mobility aids, orthoses or prostheses, and providing rehabilitation sessions and psychosocial support. Staff members also work in local clinics and hospitals to provide rehabilitation to people with injuries to prevent permanent disabilities from developing.

Where possible, HI provides some nonfood aid such as mattresses and hygiene kits. Staff members link vulnerable people to organizations, such as UNHCR, World Food Programme, Jordan Health Aid and *Médecins Sans Frontières* (MSF or Doctors Without Borders), that can meet their other needs and monitor their ability to access emergency aid.

HI also provides the same services in refugee camps such as the Zaatari camp in northern Jordan. HI works with U.N. agencies in Jordan to ensure refugee camps are designed to provide access to people with specific needs, including those with limited mobility.

HI has recently provided accessible toilets, mobility aids, dropped curbs, etc., thereby improving conditions in the camps for people with mobility challenges. However, not all areas have accessibility features, making it very difficult for those with significant physical limitations to use toilets and access services and aid-distribution points. As most refugees have no furnishings other than mattresses and blankets, PWDs often lay immobile on the floors of their tents for days. Sometimes the weekly visit from an HI physical therapist is their only opportunity for exercise and socialization outside of their family.<sup>12</sup>

### Psychosocial Support

While the extent of the physical injuries seen in Syria and host countries is extremely high, the number of Syrians suffering from severe psychological trauma is likely far greater. This is especially true for people who have been seriously injured.<sup>13</sup> As part of an integrated approach to rehabilitation, HI staff offer psychosocial support to beneficiaries and their family members.

“They’ve suffered and witnessed atrocities that go beyond the realms of the imagination—the murder of civilians, the calculated destruction of schools and hospitals, kidnapping, torture—often for extended periods of time,” said Stephanie Duverger, who is responsible for implementing HI’s psychosocial programs in Jordan. “The trauma doesn’t come to an end when they take refuge in another country, because they continue to see images of the fighting on television and hear about it from their friends and relatives.”

Survivors of torture and rape often suffer greatly. However, many are so dehumanized by their experiences they refuse help.<sup>13</sup> Traumatized children, who now lack the mental stimulation of school and play, can regress developmentally and stop communicating and interacting with the outside world. Other children are forced suddenly into adulthood because their parents died or are unable to care for them.

Duverger recounts the experience of a 12-year-old boy who became the head of his household after both of his parents were seriously injured. He was responsible for earning an income and raising his younger siblings. However, because of his own mental trauma and the stress of looking after his family, he became incontinent and now has to wear diapers.



Ammar practices standing with his prosthetic leg.  
Photos courtesy of Brice Blondel and Handicap International.

HI runs a number of psychosocial programs to help its beneficiaries begin processing their trauma and reassert control over their lives. Staff run family-support sessions, organize games and other activities for children, and facilitate discussion groups for adults. The discussion groups help traumatized refugees accept what has happened to them. By being open and sharing their experiences with others, they can collectively heal and address shared challenges.

### Risk Education

To prepare refugees for their eventual return to Syria, HI is conducting munitions risk education in Jordan. Given the organization’s experience in other post-conflict situations and the reports coming out of Syria, returnees may encounter significant amounts of explosive remnants of war as well as small arms and light weapons when they go home.





24-year-old Lubna, injured by sniper attack, with her brother in Jordan.  
Photo courtesy of Stuart Hughes and Handicap International.

Risk-education workers meet with refugees in camps and host communities to teach them about the dangers of these weapons, how to identify them and how to react if they encounter dangerous devices. As of June 2013, more than 9,000 people had attended awareness sessions. The organization completed the first phase of this project and will soon launch a second more extensive phase in the coming months.

### Humanitarian Assistance in Syria

Despite the influential work of HI, the International Rescue Committee, MSF and other actors in the Syrian crisis, the current level of humanitarian assistance is grossly inadequate to meet the needs of all affected individuals.<sup>14</sup> Nongovernmental organizations (NGO) lack the resources needed. In Syria, the fighting and the Syrian government block NGOs from delivering aid and services to many parts of the country.<sup>15</sup>

"In the best case scenario, the funding made available by the international community will cover the needs identified four months ago," said Thierry-Mehdi Benlahsen, HI's regional emergency-response coordinator, in June. "Hospitals are at the breaking point, there

is a serious lack of accommodations, and the quite exceptional solidarity shown by the inhabitants of the host countries may well reach its limits if the international community does not provide an appropriate response to the situation."

In mid-July, the U.N. estimated that an additional \$3.1 billion was needed to fund humanitarian assistance through the end of 2013.<sup>8</sup> HI remains committed to staying to ensure no victims are left behind and continues to advocate for an increase in funding, as current funding is insufficient, especially with regards to health care. ©

*See endnotes page 65*





Elizabeth MacNairn has been the executive director of Handicap International U.S. since 2011. She also serves on the board of InterAction. Previously, MacNairn worked with AMIDEAST in Washington, D.C., and Cairo, Egypt and with Catholic Relief Services in Morocco. She also worked for Health Volunteers Overseas for four years and, in 2006, joined ResCare International as Haiti program coordinator.

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## News Brief

### Do-It-Yourself Weapons in Syria

~ Dane Sosniecki, CISR Staff

Free Syrian Army forces fighting against President Bashar Assad have filled major gaps in their arsenals by building improvised weapons to combat the Syrian government's superior arsenal of artillery, tanks and warplanes. At present, much of the rebels' artillery consists of pipe bombs, slingshots, improvised grenade catapults, modified shotguns that shoot grenades, and portable mortar and rocket launchers made from miscellaneous weapon parts and scrap metal. The recently developed "Hell Cannon" launches an adapted propane-gas cylinder full of ammonium nitrate approximately one mile. Eliot Brown, a British arms expert, says it is the most powerful explosive device used by opposition forces. Perhaps the most creative rebel design utilizes a flat-screen, high-definition television and an imitation PlayStation



An improvised rocket-assisted mortar used by Hezbollah in Qusayr, Syria.  
Photo courtesy of Eliot Higgins.

video-game controller to activate a machine-gun turret atop a makeshift armored vehicle, which was originally a car's chassis.

Most recently, evidence of improvised rocket-assisted mortars/munitions (IRAMs) have appeared in Syria. These repurposed weapons are 107 mm rockets armed with oversized warheads capable of causing significant damage to structures at short range. ...

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# Spirit of Soccer in the Zaatari Refugee Camp

The Zaatari refugee camp in northern Jordan is home to almost 150,000 refugees from the Syrian conflict—many are children. Spirit of Soccer uses soccer to bring hope and teach the children of Zaatari skills that could save their lives when returning home.

by Mike Geddes [ [streetfootballworld USA](#) ]



Spirit of Soccer helps keep Syrian refugee youth occupied through a curriculum of games and exercise. All photos courtesy of Spirit of Soccer.

**Z**aatari is now the second largest refugee camp in the world; by population, it is Jordan's fourth largest city. According to the Office of the United Nations High Commissioner on Refugees (UNHCR), 60 percent of the refugees fleeing Syria are children below the age of 17.<sup>1</sup> "We are now able to sustain food, water and shelter as the numbers are more stable, but we are still facing some serious issues like keeping the youth under control and away from trouble. The youth here desperately need our attention," said Kilian Kleinschmidt, UNHCR senior field coordinator at Zaatari, during a briefing for

the Union of European Football Associations (UEFA) president, Michael Platini (17 June 2013).<sup>2</sup>

Spirit of Soccer works with the children of Zaatari using a beloved pastime—soccer. The organization engages youth and provides mine risk education (MRE) using a curriculum that combines games and exercises with simple safety messages about landmines and explosive remnants of war (ERW).

Depending on the age of the participants, a typical Spirit of Soccer MRE session lasts 90 minutes. The *Fédération Internationale de Football Association*





A soccer session with Syrian refugees at the Zaatari refugee camp.

(FIFA) endorsed the curriculum, and the techniques are tailored to suit participants' needs. Novice players receive a fundamental overview of the game, while more experienced players receive advanced lessons.

Participants are challenged in a fun, yet informative and competitive environment, and soccer-coaching sessions are followed by MRE. Tailored to the ages and specific needs of the children, MRE sessions are 10 to 15 minutes in duration in order to maintain players' full attention. The sessions involve verbal question-and-answer discussions and use printed materials like posters, laminated pictures of local ERW and even printed soccer balls. Moreover, sessions include the types of mines/ERW found in the region, possible contaminated area locations, conventional and unconventional warning signs, and how to react when encountering mines/ERW. Spirit of Soccer also addresses the issue of scrap-metal collection and encourages children to pass the information on to friends and family.

Spirit of Soccer uses coaches from Iraq to train local Syrian and Jordanian coaches in how to deliver the curriculum. These Iraqi coaches have received referee training in how to organize local youth tournaments that

promote MRE through community-level competition, as well as MRE training from senior staff and the General Directorate of Mine Action in Iraq. They are able to pass these skills on to the coaches in Zataari. All Spirit of Soccer employed coaches are also trained in basic first aid and can treat trauma injuries and shock sustained from mines/ERW.

Founded in 1996 and funded by the Office of Weapons Removal and Abatement in the U.S. Department of State's Bureau of Political-Military Affairs (PM/WRA), FIFA, Laureus Sport for Good Foundation, the Asian Football Development Project (AFDP) and the UEFA, Spirit of Soccer has reached more than 260,000 boys and girls living in conflict-affected communities in Bosnia and Herzegovina, Cambodia, Iraq, Kosovo, Laos, Moldova and Syria. During 2012, more than 46,000 children received MRE from coaches trained by Spirit of Soccer.

### MRE Through Soccer

A common Spirit of Soccer exercise involves asking a young boy or girl to outrun a soccer ball kicked by one of the coaches. No matter how quick, the child





In Zaatari refugee camp in northern Jordan, a MRE session warns Syrian children of the ERW they may encounter when returning home.

cannot run faster than the ball, and the coaches use this as a metaphor to explain how outrunning the blast of a mine is impossible. To give children a frame of reference for the effective range of these weapons, another common exercise involves kicking a ball 50 to 100 m (55 to 109 yd), and instructors explain that a detonation at this distance can still injure or kill.

In late 2012, Prince Ali bin Al Hussein, a member of Jordan's royal family and founder of AFDP, approached Spirit of Soccer Founder Scott Lee in Bosnia and Herzegovina. Prince Ali heard about several young children who were killed by a landmine while playing soccer on an abandoned airfield.

"Prince Ali asked if we would come to Jordan to see if we could bring our program to the kids in Zaatari," recalls Lee. "We visited the camp in late 2012, and ...[quickly] put forward a proposal for support to PM/WRA and AFDP.

With their help, we were able to begin delivering our programs in Zaatari in February this year."

"It is our responsibility to ensure that the kids believe in a better future," said Prince Ali at the launch of the program. "And what better way to inculcate a positive attitude amongst them than to use soccer's transcendent abilities that can help create a favorable environment for the boys and girls."

Lee brought several of his coaches from Iraq to Jordan for a series of workshops to train local Jordanian and Syrian coaches in delivering MRE through soccer. Of the 10 Jordanian and 15 Syrian coaches initially selected, nine were chosen for intense MRE training and coaching. The coaches work on the program with a team of MRE officers from the Arab Mine Action Consultancy Company to schedule and supervise the program in Zaatari and surrounding cities. Spirit of Soccer works

both in Zaatari and in the surrounding villages, which are home to tens of thousands of Syrian refugees staying with local families. So far the organization has reached almost 10,000 children.

“Conditions in that camp are incredibly tough,” says Lee, who visited Zaatari several times in 2013 to support the training of local coaches. “These are kids with very little food, little shelter, no hope. Many of them have lost friends or family, and they have been forced to come to a strange country. But soccer is one thing that brings them together, that reminds them of their old life. We’re teaching them important things that will help keep them alive when they go home—but we’re also giving them a bit of joy and hope, even for just a few hours.”

The project has attracted the support of the biggest names in soccer. Both Sepp Blatter, FIFA’s president, and Michel Platini, his counterpart at Europe’s governing body UEFA, visited Zaatari within months of each other. “This is a very difficult stage in the lives of the displaced children, and I am proud to witness how UEFA’s support is bringing them positivity and ways to learn and feel safe,” said Platini during his visit in June 2013.<sup>3</sup>

### A Better Future

Sports are often one of the easiest and most effective ways to engage children living in refugee communities and restore some semblance of normalcy in their everyday lives. More organizations hope to provide sports activities in Zaatari. For instance, the international charity Save the Children organized a three-day soccer workshop with professional coaches from Brazil in July 2013.

“We have to move from the battleground to the playground,” said Tamer Kirolos, Save the Children’s country director for Jordan. “Sport(s) can become an important tool to prevent violence and demonstrate to the [children] that participate that life is more than violence and wars.”<sup>4</sup>

The Spirit of Soccer program, on the other hand, goes deeper than just giving boys and girls a chance to play. “We realized that many of these kids are arriving at the camp deeply traumatized,” says Lee. “If you’re traumatized, you just can’t process information, such as mine risk education, in the same way.”

In April 2013, Spirit of Soccer took its Iraqi, Jordanian and Syrian coaches to Amman, Jordan, for a course entitled Coaching to Heal, which was delivered by international curriculum design experts from Edgework Consulting. The intensive four-day workshop taught

the coaches to recognize, understand and cope with traumatized children, as well as offer educational content more effectively. Training topics examined the fundamentals of understanding trauma and emphasized the positive role that coach-player relationships can have in the lives of children affected by trauma. It also provided an introduction to simple approaches using sports to support trauma healing among players.

In total, 30 coaches attended the workshop, including 15 Syrian, 12 Jordanian and three Iraqi coaches from Spirit of Soccer and two Jordanian staff from the Arab Mine Action Consultancy Company.

Spirit of Soccer is currently assessing the results of the pilot workshop and the potential for expansion. “For many of these kids, their soccer coach might be the most important adult influence in their life; someone they can open up to and trust,” says Lee. “That means our coaches have a huge responsibility.”

Spirit of Soccer intends to continue work in the region as long as the financial and security situation allows. It plans to expand into Syria as well as Lebanon, and is trying to secure funding from AFDP and others for 2014. ©

*See endnotes page 65*



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# Self-Help Ammunition Destruction Options Worldwide (SHADOW)

In response to the increasing number of explosions at ammunition storage sites (ASA), Norwegian People's Aid (NPA) created Self-Help Ammunition Destruction Options Worldwide (SHADOW), a program emphasizing national capacity building for stockpile management and destruction through low-tech and cost-effective techniques. Following the success of its first SHADOW project in Moldova in 2010, in 2012 NPA implemented another SHADOW project focused on ASAs in cooperation with Moldova's National Army and Ministry of Defense.

by Lee Moroney and Kay Gamst [ Norwegian People's Aid ]



Safe-storage practices following SHADOW and IATG's principles were implemented in Moldova in 2012. (Note that appropriate high-definition labels and markings were applied during the process.)

Photo courtesy of Lt. Col. Andrewi Camerzan/National Army of Moldova.

The disastrous effects of the ammunition storage area (ASA) explosions in Brazzaville, Republic of the Congo, on 3 March 2012 are well documented. The series of explosions killed 280 people, injured 1,500 and displaced more than 20,000.<sup>1,2</sup> The subsequent, rapid response by the United Nations Mine Action Team organizations, the International Committee of the Red Cross and international nongovernmental organizations, such as MAG (Mines Advisory Group), provided a timely response that prevented further casualties and removed the risk of additional catastrophic events that scattered pieces of unexploded ordnance could have caused.

Since 1987, the Brazzaville explosion was only one of 453 recorded, unplanned explosions at munitions sites globally—events that have increased at an alarming rate over the last decade.<sup>3</sup> States Parties to the *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction* (Anti-personnel Mine Ban Convention or APMBC) built capacity for stockpile destruction in order to implement their Article 4 obligations. The *Convention on Cluster Munitions* (CCM) in 2008 gave its States Parties additional experience for stockpile destruction as it relates to the States Parties' obligations under Article 3 of the CCM to destroy their





Example of in-country solutions: A Macedonia M93 mortar disassembly using locally procured tools with low-tech specialty equipment.

*Photo courtesy of Colin King.*

cluster munition stocks.<sup>4</sup> NPA and the Moldovan National Army took experience gained in cluster munitions stockpile destruction and applied it to addressing proper management and destruction of aging munitions in Moldova.

#### SHADOW

Norwegian People's Aid (NPA) developed the Self-Help Ammunition Destruction Options Worldwide (SHADOW) program to assist in the timely destruction of states' stockpiles.<sup>5</sup> The program was developed on the basis of studies carried out in 2008–2009 by C King Associates Ltd with the methods developed by the Golden West Humanitarian Foundation (Golden West) on excess USSR RBK series dispensers in Cambodia from the Royal Cambodian Armed Forces (RCAF).<sup>6,7</sup> These studies resulted from a clear need for safe, practical and cost-effective solutions for local and national small-scale, cluster munition stockpile destruction. Overall, the study discovered that alternative safe and affordable techniques can be developed for the disposal of cluster munitions.

SHADOW's key features allow for in-country solutions, where national ownership of stockpile challenges is crucial. The NPA Operational Management package developed for each country is the core feature of efficient planning for SHADOW initiatives. The package includes the training of an indigenous management team, utilizing local, easy-to-obtain

materials to build and develop local capacities. With few facilities required and transportation kept to a minimum through efficient project planning and support from experienced NPA technical advisors, simple low-tech solutions are developed for safe, fast and affordable implementation activities.

The first NPA SHADOW project, funded by the Spanish Ministry of Foreign Affairs through the Organization for Security and Co-operation in Europe (OSCE) and the Norwegian Ministry of Foreign Affairs, totaling EU€60,765 (US\$82,151 as of 19 September 2013), took place in Bulboaca, Moldova in cooperation with its Ministry of Defense (MOD) and National Army in 2010. With on-site assistance from NPA, Colin King (C King Associates Ltd) and Len Austin (Golden West), a series of logical phases led to the implementation phase. The first phase, the verification and feasibility assessment, identified the cluster munition types and submunition payloads in storage, assessed their condition and confirmed whether SHADOW was suitable.

The research and development phase then established the minimum level of resources and activity required to complete the project safely. The final phase, the preparation and proving phase, tested a limited number of each type of submunition according to the processes determined in the previous phase to establish a basis for time analysis for planning the implementation phase. During the implementation phase, the



Norwegian People's Aid trained Moldovan civilians in the Moldova project. In this photo, PTAB 2.5M submunitions are extracted from an RBK dispenser.  
*Photo courtesy of Werner Anderson.*

country's stockpile of cluster bombs was destroyed in 17 days. Due to NPA's ability to mobilize assistance quickly with limited bureaucracy, the traditional barriers perceived between the National Army and civil society began to disappear. This further solidified the relationship between the two, leading toward similar future humanitarian projects.

#### **Ammunition Stockpile Management**

Similar to stockpiles of cluster munitions, Moldova has vast amounts of legacy munitions remaining from the Cold War era. Not only were the serviceability and integrity of the stored ammunition in question, the stockpiling practices and the conditions of the explosive storehouses (ESH) posed considerable risks of future unplanned explosions. The Moldovan government's ongoing work with OSCE to reduce the amount of surplus ammunition in the country also helped lead to cooperation between NPA and the Moldovan MOD for a second SHADOW project.

Building on the successful approach used for the destruction of the cluster munition stockpiles, NPA followed the prin-

ciples of the International Ammunition Technical Guidelines (IATG), taking advantage of low-tech, cost-efficient solutions and building sustainable local capacities through its SHADOW program. In collaboration with Moldova's National Army in 2012, NPA worked to enhance the safety and security of a medium-sized ASA surrounded by farming communities 37 km (23 mi) from the capital city.

The first phase of the project focused on an ESH filled with a range of munitions, which were designated for disposal. On initial inspection, ammunition needing immediate disposal had not been prioritized. Due to the limited support of previous ammunition-management projects in Moldova, the ammunition boxes were stacked haphazardly, had a mix of nomenclatures and included dangerously exposed items (such as loose propellant and propelled grenades). Environmental deterioration left a majority of the munitions in poor condition, which also raised concern about the integrity of the explosives.

The SHADOW project established processes to inspect, condition, store and classify munitions for immediate and



subsequent disposal. With assistance from the National Army, all ammunition was removed safely from the ESH under supervision. Technical officers, who received additional training from an NPA adviser, then inspected and stored the ammunition according to its category and designation.

After completion of this first phase, the ESH now stored palletized and segregated ammunition in a safe fashion, enabling personnel to account for, access and remove the ammunition in a safe manner. Separation distances were also followed in accordance with IATG, limiting the risk of propagation if an unplanned explosion occurred.

From June to July 2012, the second phase of the project focused on the remaining 11 ESHs within the same depot, which contained in total approximately 480 tons of ammunition. While these ESHs contained training ammunition, none of the boxes were palletized or raised off the ground, and very few had hazard markings, which are required for safe identification, storage and transportation. The simple processes of the first phase were followed, and all the ammunition was inspected and classified according to physical condition. This enabled the military to effectively manage its ammunition cycles, using the ammunition for training prior to the expiration of its shelf life or prioritizing it for disposal due to age and condition.

Within a three-month period, the completed project demonstrated that basic ammunition surveillance and management practices can be conducted safely and cost-effectively without expensive technologies or vast funding as long as thorough procedures and quality management checks are in place.

### Conclusion

IATG emphasizes that “the lack of resources in some states means that

it is not possible to establish a unique set of criteria that dictate conventional ammunition packaging and marking standards. Instead, it is necessary to identify a framework of guidelines, which provide the options for a graduated improvement in safety, packaging, and marking of ammunition and explosives within an integrated risk management process.”<sup>8</sup> The SHADOW project in Moldova illustrates that, with a small amount of funding and a dedicated co-operative team, an ASA’s level of safety can be significantly increased.

Moldova has shown considerable leadership in confronting its ammunition stockpiles. It should be commended for its effort to limit the risk of unplanned explosions, thus ensuring the safety and security of its civilian population. More challenges remain for Moldova related to its additional ammunition depots, but this first project in Bulboaca created the standards and processes for future successful projects. Together with its other partners, Moldova is working to develop national standards for the storage and transportation of ammunition.

NPA developed SHADOW as a preventive concept that emphasizes self-help, national ownership, capacity building, local employment and investment opportunities. It provides safe, simple, low-tech solutions to challenges and features an effective and achievable operational management system that encompasses critical aspects of stockpile management. The program improves the security of civilian populations through preventive measures.

Whereas support for comprehensive implementation of the APMBC and CCM are extremely important, this additional focus on ammunition safety and disarmament should be equally important for states, organizations and donors. ©

*See endnotes page 66*



Lee Moroney, member of the Institute of Explosives Engineers, joined NPA in 2007. Using his experience as an ammunition technician, he managed the cluster munition and ammunition management projects in Moldova. During his tenure with NPA, he worked in Laos and initiated and managed the country programs in Thailand and Vietnam. He is presently the project manager for the SHADOW cluster munition project in Macedonia. He is pursuing a distance-learning master’s degree in diplomacy and international policy, and he aims to continue his studies in disarmament issues.

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# Has the CCM Accommodated Gender?

While the *Convention on Cluster Munitions* has taken steps to include gender, it missed the opportunity to mainstream gender into a disarmament treaty.

by Dalila Mahdawi [ Independent journalist ]



A MAG (Mines Advisory Group) deminer searches for buried cluster munitions in south Lebanon. MAG is one of a growing number of mine action organizations operating in Lebanon with both male and female deminers.

*Photo courtesy of the author.*

A number of scholars have written about the *Convention on Cluster Munitions* (CCM), but without much elaboration on its articulation of gender issues. The dearth of literature is perhaps unsurprising given the CCM's legal novelty; yet this contrasts with women's notable involvement in disarmament campaigns and scholarship on the gendered effects of militarization.<sup>1</sup>

In the last decade, the U.N. has recognized the merits of incorporating gender considerations in all areas of policy-making, including mine action, and has noted that "mainstreaming gender in programming leads to better outputs."<sup>2</sup> Pre-existing gender-based norms can play a profound role in shaping the experiences of adults and adolescents affected by cluster munitions. Cluster munition casualties are highly gendered, with males representing 84 percent of direct victims, according to Handicap International.<sup>3</sup> However, organizations like the International Committee of the Red Cross have said the repercussions of cluster munition accidents may more often disadvantage females.<sup>4</sup> In many societies, female casualties are frequently left unreported.<sup>5</sup> Injured females may not have access to adequate medical facilities and may be less informed than males about available services or treatment. Discrimination against disabled or disfigured women and girls may prevent marriage or result in abandonment or divorce. The wives of men who have been killed or disabled often struggle to economically provide for their families. The difficulty is exacerbated in areas where it is not culturally acceptable for a woman to work outside the home.<sup>6</sup>

The CCM relegates women to a special category, thereby reinforcing the overall androcentric nature of international law and treaty negotiation and showing only cursory interest in gender considerations. Nevertheless, even the limited steps the CCM took to include gendered provisions signal a departure from previous arms conventions; this budding awareness may herald a movement toward greater interaction with gender in the cluster munitions field.

## Treaty Provisions

The CCM begins with 20 preambular clauses highlighting its purpose and underscoring the urgent need to protect civilians from cluster munitions. Of these clauses, two refer to the vulnerability of women as victims, while a third notes women's role in peace and security. In Paragraph 3, signatories express their concern "that cluster munition remnants kill or maim civilians, including women and children."<sup>7</sup> This



Women and children on their way to a winter wedding in Bamiyan, Afghanistan.  
Photo courtesy of U.N. Photo/Aurora Alambra.

is followed in Paragraph 8 with States Parties “recognizing the need to provide age- and gender-sensitive assistance to cluster munition victims and to address the special needs of vulnerable groups.”<sup>7</sup>

### Preamble 3: Women and Children

While the reference to civilian women and children is important in highlighting the disproportionate suffering of noncombatants, it is nevertheless problematic. Whether intentional or not, including women by reference to their vulnerabilities reinforces harmful gender hierarchies. As Karima Bennouna, a professor of law at the University of California Davis School of Law (U.S.), observed, the depiction of women as inherently violable pervades international law.<sup>8</sup> Grouping women with children, the CCM denies both groups agency by bestowing an assumed passivity that simultaneously infantilizes women and feminizes children.<sup>9</sup> Such a classification, which a 19th century philosopher and economist John Stuart

Mill labels “indefensible in principle and mischievous in practice,” conceives of women as nonsubjects and further disenfranchises them from their already marginalized position in international law while buttressing men’s superiority.<sup>10</sup>

However, the absence of any explicit mention of women or gender concerns would be equally troubling from a feminist perspective. The above preamble clause reveals the tension in using law to advocate for gender equality. On the one hand, if explicit references to women’s rights and experiences are not made, women are inevitably marginalized.<sup>11</sup> On the other hand, by distinguishing women as a separate category, international law disempowers them and reinforces the difference of “the second sex.”<sup>12</sup> Proof of this can be seen in the early days of the Committee for the *Convention on the Elimination of All Forms of Discrimination Against Women* (CEDAW), which was granted fewer resources than other treaty bodies and led to the “ghettoization” of women from the human rights arena.<sup>13</sup>





A soldier from the U.N. Interim Force in Lebanon views undetonated cluster bombs not more than 10 m (11 yd) from the home of Aleye Al-Dor, a Lebanese woman who stayed throughout the conflict in Hiniya, Lebanon.  
Photo courtesy of U.N. Photo/Mark Garten.

Special references to women and children as civilians who are vulnerable to cluster munitions pose an additional challenge. According to R. Charli Carpenter, an associate professor in the Department of Political Science at the University of Massachusetts-Amherst, the traditional humanitarian focus

on women and children as the innocent parties in conflict overlooks the fact that adult male civilians are often at greatest risk.<sup>14</sup> In the CCM, the omission of men from the civilian category grossly distorts the realities of global cluster munition casualties, where the overwhelming majority of direct victims are noncombatant males.<sup>3</sup> Such gender essentialism, says Carpenter, “situates women alongside children as innocent, dependent, and vulnerable, and ... draws attention away from the fact that adult men may also be members of the civilian population worthy of respect, concern and protection.”<sup>14</sup> When referring to women and children, the CCM used the word including, which implies that men comprise the majority of casualties; however, this language presents the vulnerabilities of women and children as especially aberrant. Accordingly, the CCM underpins the helpless-women mythology that permeates international law and assumes for itself a masculine role as protector.

The CCM could have taken a more representative and gender-inclusive approach: to explicitly refer to all civilians harmed by cluster munitions, thereby drawing men into the category of vulnerable civilians and women and children out of their subordinate status.

#### Preamble 8

Paragraph 8 of the preamble calls for age- and gender-sensitive assistance. Initially, it appears to recognize the relationship between gender roles and the risk of exposure to cluster munitions as well as the need to tailor assistance for victims. Disarmament has not historically featured gender concerns on a large-scale, as the Swiss Campaign to Ban Landmines has noted.<sup>15</sup> Arms-control conventions preceding the CCM were gender-blind and failed to elaborate on the different ways mines and explosive remnants of war can affect women, men, girls and boys. For example, the 1997 *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction* (Anti-personnel Mine Ban Convention or APMBC) and the 1980 *Convention on Certain Conventional Weapons* scarcely refer to whom they protect, employing such gender-neutral terminology as victims or civilians.<sup>16</sup> Although the CCM minimally references women and gender, any references at all are a departure from the “womanless world” of international law and disarmament treaties in particular.<sup>17</sup>

Nevertheless, paragraph 8 appears to lack a nuanced understanding of gender. It does not state who has special needs or belongs to a vulnerable group. Given the sentence’s emphasis on age and gender, and bearing international law’s andro-



centric history in mind, the reader can only assume it refers to women, children, the elderly and the disabled. That feminist efforts to use law for advocacy may have had the opposite effect is ironic, unwittingly “further entrenching women’s inequality” by reinforcing gender hierarchies that uphold males as the universal subject.<sup>11</sup> Additionally, the CCM does not define what it means by gender. With gender often understood as synonymous with women, its meaning in the CCM cannot be taken for granted.<sup>16</sup>

#### Preamble 15

Preamble 15 in the CCM is to be implemented “bearing in mind” U.N. Security Council Resolution 1325 on Women, Peace and Security (Resolution 1325), thereby making a clear normative link between women’s rights, gender, peace building and humanitarian disarmament. Adopted in October 2000, Resolution 1325 has been described as a “watershed political framework that makes women and a gender perspective relevant” in all areas of the council’s work on international peace and security.<sup>18</sup> Its preamble remarks on the need to “ensure that mine clearance and mine awareness programmes take into account the special needs of women and girls.” The CCM references the resolution, demonstrating a cognizance of the importance of gender in mine action. Nevertheless, the choice of action, “bearing in mind,” is less forceful than other verbs used in the preamble, such as resolved, determined or reaffirming, and does not oblige signatories to do more than pay lip-service to the resolution.

#### Substantive Articles

Despite the initial three clauses signaling gender awareness and women’s rights, the CCM does not follow up with detailed actions on how to advance them. The text relates to general obligations like timetables for land clearance or stockpile destruction; all but three articles are described without reference to gender. Concerning victim assistance, Article 5 requires states to “adequately provide age- and gender-sensitive assistance” without discrimination. Article 6(7) similarly urges States Parties with the means to do so to “adequately provide age- and gender-sensitive assistance” to affected countries, while Article 7(1)(k) obliges states to submit an annual report that details compliance with the treaty.<sup>4</sup> Markus Reiterer, a former chair of the Standing Committee on Victim Assistance of the APMBC and former coordinator for victim assistance in the framework of the CCW, deems that while the CCM’s inclusion of age and gender is “an important marker,” it does not demonstrate an understanding of the different experiences of women and men, girls and



A Sri Lankan deminer with MAG.  
Photo courtesy of MAG/Sean Sutton.

boys.<sup>19</sup> As Charlotte Bunch, a professor at Rutgers University and an American women’s rights activist, has remarked, adding women or gender into the existing legal cauldron will not bring about the necessary changes in mentality and policy to which gender mainstreaming aspires.<sup>20</sup> Arianna Calza Bini, program manager at the Gender and Mine Action Programme, said: “A gender perspective ... is about thinking and seeing things through ‘gender glasses,’ understanding the implications of a gender approach in terms of a whole system that structures societies, and thus, also the affected countries and communities.”<sup>21</sup>

Like the APMBC, the CCM “lacks the extensive implementation, verification and compliance components of other major treaties.”<sup>22</sup> The state reports mandated under Article 7 are descriptive in nature, and, although Article 8 empowers States Parties to submit a Request for Clarification regarding compliance by other treaty parties, gender considerations do not yet appear to have been factored into such requests.<sup>7</sup> However, Article 7 could be useful for gender mainstreaming, as it encourages states to demonstrate how they implement the treaty’s humanitarian goals. But given the lack of reporting

guidelines, quality fluctuates wildly. According to Mary Wareham, a consultant to the Arms Division of Human Rights Watch who was instrumental in campaigning for the CCM, “Some countries give hundreds of pages for their Article 7 report, and others give a paragraph ... sometimes in the longer ones, you’ll find information about women.”<sup>23</sup>

The CCM has taken a more expansive approach than previous disarmament treaties by comprehensively defining victims. Article 2 defines victims as “all persons who have been killed or suffered physical or psychological injury, economic loss, social marginalization or substantial impairment of the realization of their rights caused by the use of cluster munitions.”<sup>27</sup> Besides those directly affected, the CCM also recognizes “their affected families and communities.”<sup>27</sup> According to Calza Bini, such a comprehensive definition recognizes that cluster munitions have substantial repercussions beyond the individual directly affected, as “accidents involving male family members impact on both the direct and indirect victims and often result in severe changes in gender roles and responsibilities of all family members.”<sup>21</sup>

### Strengthening Gender in the CCM

The CCM does not operate in isolation. Article 2(2) of the *International Covenant on Economic, Social and Cultural Rights* and Article 2(1) of the *International Covenant on Civil and Political Rights* prohibit gender-based discrimination, sharing a common Article 3 guaranteeing equal rights of women and men to its provisions.<sup>24,25</sup> Similarly, the CEDAW obliges States Parties to end discrimination against women (Article 2) and to enact “temporary special measures” to that effect (Article 4).<sup>26</sup> The CCM also acknowledges the 2008 *Convention on the Rights of Persons with Disabilities*


(CRPD) in preambular Paragraph 9.<sup>7</sup> The CRPD makes eight separate references to disabled females and states they are more likely than males to experience gender-based discrimination (preamble and Article 6).<sup>27</sup>

The 1995 Beijing Platform for Action meanwhile includes an article stating that “women and children are particularly affected by the indiscriminate use” of mines.<sup>28</sup> The U.N. Secretary General has also acknowledged the “invaluable contribution” mine action plays in realizing the Millennium Development Goals (MDG).<sup>29</sup> Goal 3 of the MDG promotes gender equality and women’s empowerment. Harmonization with gender provisions in other treaties will lead to a stronger, more strategic understanding of the relationship between gender mainstreaming, mine action and human rights protection as a whole. Moreover, it should also result in information exchange on best practices for gender mainstreaming and the formulation and diffusion of norms on gender in mine action.

The CCM could strengthen gender mainstreaming by elaborating the gender dimensions of each substantive article, as many U.N. human rights treaty bodies have done through general recommendations or comments.<sup>30</sup> These recommendations have recognized women as full legal subjects, dismantling protective representations of women by specifying how states can achieve gender equality. Since the CCM does not have a treaty body, this work could be accomplished at the annual Meeting of States Parties and during intersessional meetings.

An additional way to advance gender is to measure how States Parties implement the Vientiane Action Plan, created at the First Meeting of States Parties in Laos in 2010 to realize the CCM’s provisions.<sup>31</sup> The 66 actions in the plan commit States Parties to fulfill the CCM’s

obligations and mentions gender concerns in seven points, demonstrating that the CCM can accommodate gender.

The U.N. *Gender Guidelines for Mine Action Programmes* is perhaps the most valuable tool for integrating gender concerns into mine action. Offering the most thorough explanation of appropriate practices on gender in mine action, these guidelines help diffuse gender policy norms in a traditionally gender-blind sector. States Parties should be urged to emphasize how they use these guidelines in their Article 7 reports. Guidelines also should be produced to standardize Article 7 reports in ways that oblige States Parties to meaningfully engage with gender concerns. 

See endnotes page 66



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## RESEARCH & DEVELOPMENT

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# Miniature Aerial Photography Planes in Mine Action

The Geneva International Centre for Humanitarian Demining analyzed the benefits, potential uses and cost efficiency of miniature aerial photography planes for use in mine action.

by Inna Cruz and Daniel Eriksson [ GICHD ]

The peaceful use of unmanned aircraft systems (UAS) increases significantly as their cost and complexity reduces. Their use within the military environment has grown exponentially over the past 10 years, and fully autonomous, ultralight, unmanned aerial vehicles (UAV) are now commercially available.<sup>1</sup> Their small mass and soft material reduces the risks associated with use, which was a concern in the past with large fossil fuel-powered platforms. In addition, their autonomous capacity means that they are very easy to deploy, operate and retrieve without the need for an expert operator.<sup>2</sup>

UAS offer promising environmental, cost and efficiency benefits for a whole range of applications from crop-spraying and traffic-monitoring to pipeline and power-line surveillance.<sup>1</sup> These technologies have potential applications in domains such as scientific research, disaster prevention and management, homeland security, environmental protection, communications missions and protection of critical infrastructure (Figure 1).<sup>3</sup>

The potential benefits of using UAS technologies in humanitarian mine action are still being explored. Past use focused mainly on detecting individual mines and explosive remnants of war (ERW) using large, expensive UAS units.

## Background

The Geneva International Centre for Humanitarian Demining (GICHD) is running a feasibility study to explore all potential benefits of the use and cost efficiency of fixed-wing, miniature aerial photography

Unmanned aircraft systems (UAS) include the complete solution and software for flight planning and control, imagery treatment and analysis. Unmanned aerial vehicle (UAV) refers to the aerial platform, the plane itself. Miniature aerial photography plane (MAPP) is a term GICHD adopted to call the UAV used during the feasibility study. UAV and MAPP are however synonymous.

plane (MAPP) technologies in emergency operations and humanitarian mine action. MAPPs produce very high-resolution, low-cost aerial photographs of hazardous areas (Figure 2).<sup>4</sup>

GICHD's study focuses on fixed-wing UAS in the ultralight micro and mini categories (MUAVs) developed for civilian use.<sup>5</sup> This category of systems dominates the civilian market (Figure 3).<sup>3</sup> Because of their small size MUAVs have fewer legal restrictions than larger UAS.

Images acquired with MAPP can be used to enhance planning, recording and reporting capabilities at different stages of the land release process. Currently, these systems are not deemed adequate to detect the presence of ERW contamination—although indirect indications of contamination could be detected, like the presence of trench lines, barbed wire, impact craters, etc.

In the framework of the project, 20 mine action actors participated in a survey of UAS user requirements to determine existing needs in the mine action sector for UAS technology. Then a mini UAV, the Swinglet CAM, also called MAPP in the scope of the GICHD feasibility study, was selected to test the complete work flow (flight preparation, departure and landing controls, and image extraction). The objective was to determine technical and capacity requirements for MAPP use as well as to identify the most appropriate methodology for imagery processing and analysis. GICHD funded and fulfilled numerous Swinglet CAM flight tests in Azerbaijan, Sweden and Switzerland. Special emphasis was made on the analysis of existing needs of such technologies in the mine action sector.

The project was conducted in a close collaboration with United Nations Institute for Training and Research (UNITAR) Operational Satellite Applications Programme, Swedish Civil Contingencies Agency, Azerbaijan National Agency for Mine Action, Iraqi Kurdistan Mine Action Agency (IKMAA) and Cambodian Mine Action Center.

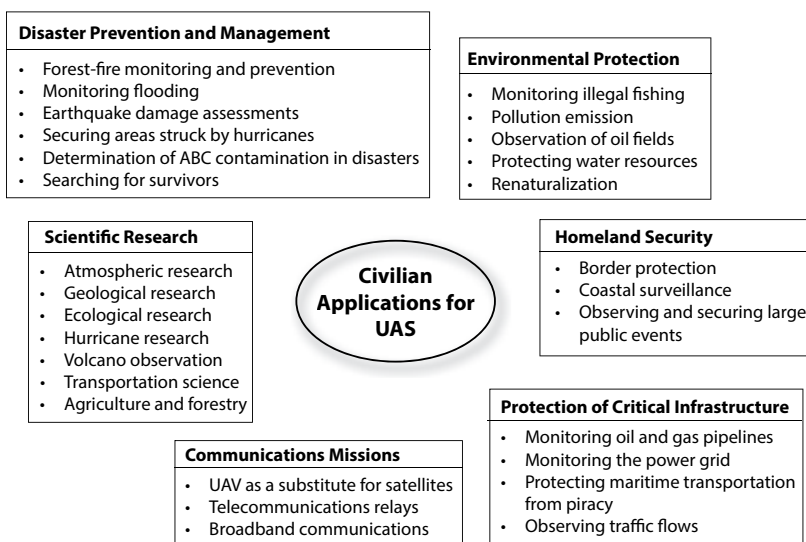


Figure 1. Civilian applications for UAS.

Figure courtesy of Theresa Skrzypietz/Brandenburg Institute for Society and Security.<sup>3</sup>

## UAV Imagery

## Satellite Imagery, ESRI



Figure 2. High resolution UAS imagery (left) and GeoEye satellite imagery (right).  
Figure courtesy of GICHD.

## Existing UAS in Mine Action

Examples of past UAS use in mine action include the Airborne Minefield Area Reduction (ARC) project. The ARC system was based on a helicopter UAV with optical, infrared and hyperspectral sensors. The ARC consortium in Croatia tested the complete airborne system (Camcopter and cameras).<sup>6,7,8</sup>

More pragmatic solutions to acquire pictures over areas include using kites or weather balloons fitted with cameras. Unconfirmed reports of the use of such devices in mine action come from Southeast Asia.

Sky-Watch, in close collaboration with DanChurchAid (DCA), planned to use the Sky-Watch Hugin X1 quadcopter to survey the extent of contamination in certain areas of Libya.<sup>9</sup> The imagery Sky-Watch can produce is claimed to help in operational planning. However, the tests did not occur because DCA did not receive permission for the flights in Libya.<sup>10,11</sup>

## User Requirements Analysis

GICHD conducted an online “Unmanned Aircraft Systems user requirements” survey in 2012 to identify user needs and potential uses for UAS technologies in humanitarian mine action. The 20 respondents were representatives of national and international mine action organizations and nongovernmental organizations, predominantly consisting

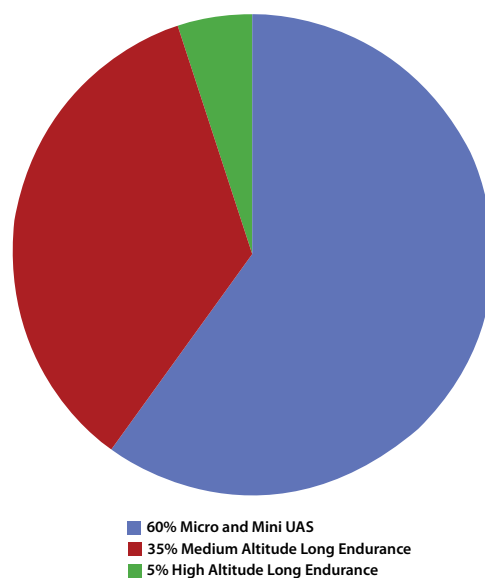


Figure 3. Civilian market for UAS in Europe by category, 2008–2017.  
Figure courtesy of Therese Skrzypietz/Brandenburg Institute for Society and Security.<sup>3</sup>

of information-management and operations staff with combined work experience in 14 different mine-affected countries.<sup>12</sup>

The majority of respondents (84%) did not have experience with UAS. According to participants, the main constraints are cost, inexperience with UAS, legal restrictions, logistics and safety and security issues (Figure 4).

The majority of respondents were interested in mini fixed-wing and quadcopter UAS categories. Respondents were less interested in helicopter UAS categories.

Equipment and maintenance costs seem to be an important constraint for widespread UAS use in the mine action sector. The survey showed that the procurement price for an entire UAS should not exceed US\$10,000 for the average buyer. The respondents (75%) also expressed the desire to purchase equipment for their respective country program or international organization rather than receive help from commercial companies on temporary missions. Some respondents (25%) indicated that another option could be to ask nonprofit humanitarian organizations for such services.

Video or photography collected by a remotely piloted plane can be stored locally on the camera and retrieved once the plane lands or transfers to the ground station remotely. Receiving real-time surveillance of dynamic situations is important for security operations (e.g., border protection, monitoring the coastline), disaster management operations (e.g., forest fires, floods, earthquakes, storms). Contrary to these time-sensitive operations, survey participants deemed the postflight transmission of the photography data sufficient for mine action applications. This is important, as postflight transmissions greatly reduce the system's size, weight, cost and overall complexity.

Regarding the output product type, the respondents were interested mainly in imagery mosaics (the combination of numerous photos into one large photo) and georeferenced orthorectified mosaics, digital elevation models (DEM) and 3-D models corrected with the help of ground-control points (GCP) to improve geolocation accuracy (Figure 5). The respondents (63%) desired geospatial data accuracy of 1 m or better.

The respondents saw UAS output imagery products as beneficial to humanitarian mine action. They ranked the potential use for high-resolution imagery, as listed in Figure 6.

#### Swinglet CAM

GICHD selected the ultralight Swinglet CAM, a 500 g autonomous flying wing produced by senseFly, which falls under the MUAV category, to use in flight tests. Numerous civilian UAS are in this category. Con-

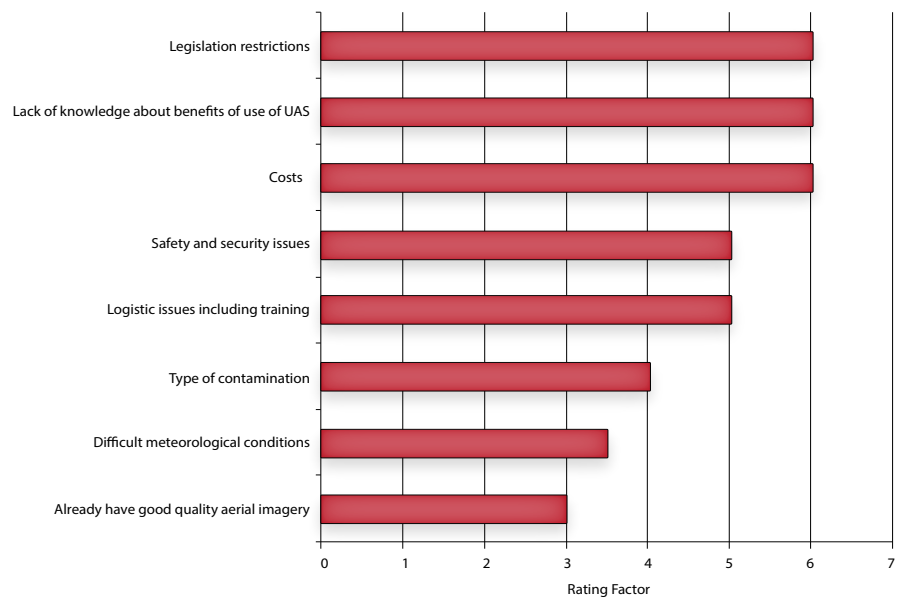


Figure 4. The main perceived constraints of UAS use according to the survey (7 = most important).  
Figure courtesy of GICHD.

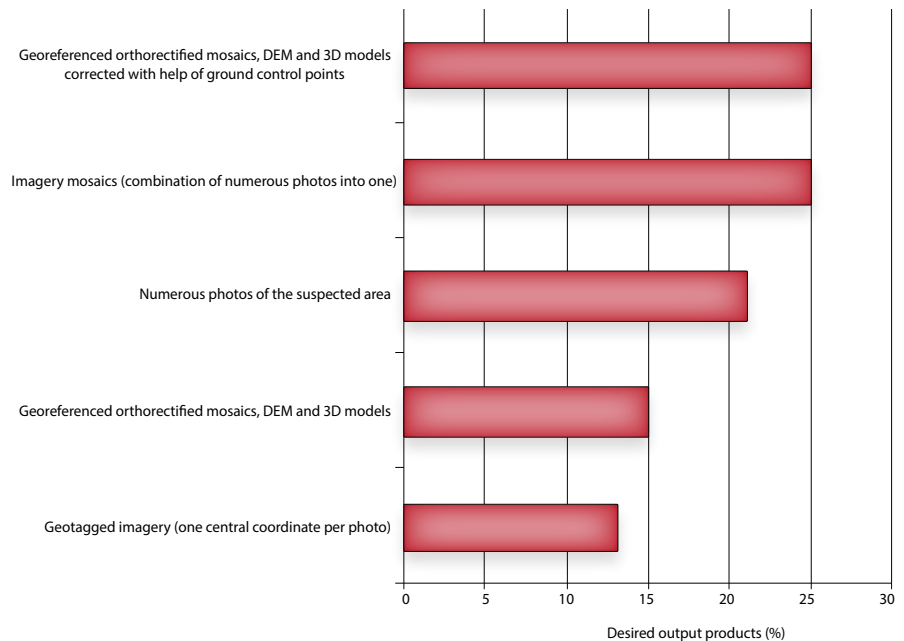


Figure 5. Requirements for the level of the output products (%), according to the survey.  
Figure courtesy of GICHD.

ducting future flight tests of other UAS in the same category will be beneficial for comparison. The following criteria were considered when selecting the Swinglet CAM: accessibility; cost; compactness for an easily transportable system; ease of use; takeoff and landing radius; and robustness, meaning it is easily repairable without special tools.

The Swinglet CAM system includes a u-blox GPS chip, an altitude sensor, a radio setup for a transmitter and an autopilot circuit board. The maximum payload is 125 g. An autopilot operates the UAV independently, keeping it on the programmed flight lines

and triggering the camera shutter. Power supply is assured with a small lithium-ion battery, and flight time is about 30 min. The Swinglet CAM can operate in winds up to 25 km/h. The sensor is an off-the-shelf Canon Ixus 120IS camera with 16 megapixels (4000×3000 pixels).<sup>13</sup> The camera setup for data acquisition is managed automatically with autofocus and automatic speed-aperture settings. The autopilot electronically integrates and controls the camera. Integrating another camera in the system at a higher cost is also possible. To protect the camera during takeoff and landing, the camera is shut down. Each image is tagged



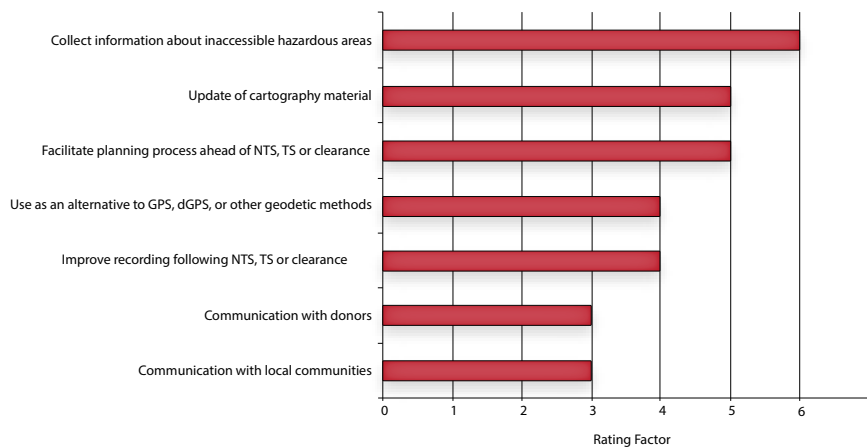


Figure 6. Potential applications of high-resolution imagery in humanitarian mine action (7 = most important).

Figure courtesy of GICHD.

with one grid reference from the GPS sensor. An altitude sensor provides the three orientation angles: roll, pitch and heading.<sup>13</sup>

The Swinglet CAM kit is compact and easily transportable, although the bag does not meet carry-on luggage size restrictions (Figure 7, page 54). The Swinglet CAM does not include imagery treatment software (for mosaicking, georeferencing or 3D modeling) or imagery analysis software.

#### Flight Preparation, Planning and Control

The included e-motion (electronic monitoring station) software makes flight preparation, planning and control straightforward tasks. E-motion is Swinglet CAM's proprietary user interface: Its main functions are programming the flight plan and photo locations, displaying the position of the Swinglet CAM, modifying the flight plan during the flight, and displaying status, warnings and error messages.<sup>14</sup> During flight tests, e-motion was intuitive. One day of training is sufficient to use the software and the Swinglet CAM as intended. Three GICHD staff members carried out test flights in Switzerland, and one carried out test flights in Azerbaijan and Sweden. Some GICHD staff managed to operate the system with less than a day's training. Using the same Swinglet CAM, up to 10 flight tests were conducted in Azerbaijan, 15–20 in Sweden and 30–40 in Switzerland.

The Swinglet CAM does not need a launch system. One person can launch the device by holding it with both hands and shaking it firmly three times. This initiates the takeoff process if the pre-flight planning and check procedure is completed. Two operators initially encountered problems because the propeller was wrongly positioned, highlighting the importance of the pre-flight checks. After a couple of failed attempts, operators could successfully launch the Swinglet CAM. Once airborne, the

autopilot takes control, and the device reaches the programmed cruising altitude.

If the default flight plan is not altered, the Swinglet CAM is set to land at the same point from which it took off. Based on test flights, the difference between the landing point and the takeoff point is between 9 and 40 m, which is attributed to strong wind and local topography. The altitude sensor on our tested version of the Swinglet CAM is not accurate enough to achieve a more precise landing. The alternative is to take manual control of the device, which is risky and requires a very experienced operator. Later models of the Swinglet CAM ship with a more accurate altitude sensor but at a significantly higher cost: CHF10,000 (US\$10,754.40 as of 9 September 2013) for the Swinglet CAM and CHF20,000 (\$21,508.80) for the new eBee. The eBee package also includes the imagery treatment desktop software, postflight Terra 3D-EB (for mosaicking, georeferencing and 3D modeling), which must be purchased separately for the Swinglet CAM.

The complete MAPP work flow (from flight planning to landing) is quick. In our test flights, the minimum time needed to complete the whole work flow was 45 minutes to an hour. The process could last several days depending on the area size, the weather and the number of flights needed to achieve the desired image resolution.

During flight tests, two failed Swinglet CAM takeoff attempts in Switzerland resulted in the propeller cutting a gash in the wing. These were repaired with the glue shipped with the Swinglet CAM.

Another crash occurred during flight due to operator error while testing in hilly terrain in Azerbaijan. The flight plan was changed while the Swinglet CAM was in the air because the area of interest was not fully covered. The Swinglet CAM was ordered to return to its home point, which is located 70–75 m above the launch location. After the launch, the

plane reaches the home point prior to starting the flight plan. It returns automatically back to the home point after the flight is accomplished and in cases of emergency. The altitude of the home point is static and cannot be changed. When the operator pressed the "Go to Home" button, the flight altitude changed from 130 to 70 m and the Swinglet CAM crashed because the hills were not accounted for. The resulting controlled flight into the terrain separated the battery from the plane. Using the last coordinate recorded by the e-motion software, locating the MAPP was possible. It had not sustained any damage, and after the battery was reinserted it could continue the flight without problems, proving a certain amount of durability and field-worthiness.

#### Postflight Imagery Treatment

The Swinglet CAM's output is a large collection of overlapping photographs each assigned a recorded GPS position. The raw, positional accuracy of the captured photos is poor because of the ultralight, unstable flying platform. This was the main challenge in the early development of UAS systems for aerial photography. Nowadays, numerous photogrammetry software can automate postflight imagery treatment, making accuracy an easy task. In comparison to the actual operation of the UAS flight, however, this step requires more skill and expertise in order to achieve high-quality imagery.

When using photogrammetry software, the photos combine into one image: an imagery mosaic. During this process, only the best quality pixel of each overlapping image is selected. The same software georeferences and orthorectifies the imagery mosaic. GCPs measured on the ground can improve the geolocation accuracy. More advanced products, such as DEMs and 3-D models, can also be generated.

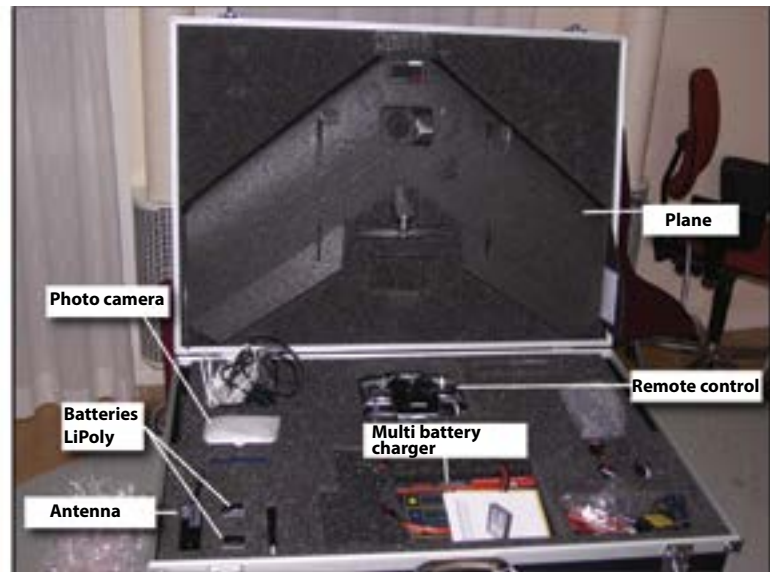
Table 2 (page 54) gives some suggestions for existing imagery-treatment software depending on the desired product. The processing difficulty depends on the level of desired product, quality of the raw data, geographical position-accuracy needs and the software used.

#### Post-processing Software

During MAPP tests, senseFly suggested using the Pix4D, called Postflight Terra 3D-EB, automatic photogrammetric technique. The geolocation accuracy is about 1–2 m without GCPs depending on the ground resolution of the original images.<sup>15</sup> Accuracy ranges between 0.02 and 0.2 m for products improved with the help of GCPs.<sup>3</sup> This means that the actual location of a pixel in the image can deviate between 2 cm and 2 m depending on the quality and the method used to georeference and orthorectify the image.



Figure 7. The Swinglet CAM from senseFly.  
Figure courtesy of Andreas Nilsson MSB/GICHD.



Stages	Pre-flight preparations Equipment Maintenance	Flight planning Resolution, Altitude, Weather ...	Flight Take-off, Flight time, Landing
Time Estimation	Continuous maintenance	Depending on quality of desired results Min - 5 minutes Max - Several days (DEM, detailed map)	Take off - about 5 min Flight time - 30 min with same battery Loading - Max 2 min

Table 1. MAPP workflow.  
Table courtesy of GICHD.

Level of Product	Numerous photos (.jpg for MAPP)	Geotagged Imagery	Imagery Mosaic	Georeferenced and orthorectified mosaics, DEM, 3D
Software Visualization Processing	Many	ArcGIS, Google Earth, GeoSetter	Hugin, Microsoft Image composite editor, ER- DAS LPS, Panoweaver, Image Composite Editor, Photosynth application	LPS ERDAS Imagine, Inpho, SOCET GPX, Geomatca, Summit Evolution Professional, Terra 3D

Table 2. Suggestions for imagery visualization and treatment software.  
Table courtesy of GICHD.

During UAS equipment selection, special attention should be paid to imagery-treatment software solutions. The Postflight Terra 3D software is also provided through a cloud solution (software as a service). This means that the operator needs good Internet access to upload collected imagery, often exceeding several gigabytes. Postflight Terra 3D provides options for payment per project, which may include several flights over an area of interest. For this project, the basic products (georeferenced mosaic and .kml products) created using this cloud solution cost approximately CHF70 (US\$80 as of 2 October 2013) and advanced products (digital surface model and 3D models) cost approximately CHF300 (\$330). The total for advanced products included the basic products. The price depends on the number of square kilometers covered, and exact figures must be negotiated with senseFly.

Postflight Terra 3D software is now available as desktop software that does not require Internet access. However, the software's one-time license cost exceeds that of the Swinglet CAM itself. The Postflight Ter-

ra 3D Desktop is included in the more expensive senseFly eBee package, but was not included in the Swinglet CAM package.

Using the images captured by UAS without combining them is possible with photogrammetry software. This makes the image immediately accessible after the flight. However, these images are not georeferenced, and the number of images makes it difficult to pick out an image of a specific area.

#### Image Imperfections

Some imperfections to the output products are inherent to aerial photos at low altitude. For example, Figure 8 shows line and object deformation. These errors are related to the mosaic technique and are caused by each image's optimal perspective in its center.<sup>15</sup>

The deformation of tall objects also presents a challenge. During the flight, the photos are taken from different angles (e.g., see Figure 9, page 56). Trees seem to point in random directions, which is a byproduct of



Figure 8. Line and object deformations in orthoimages.  
Figure courtesy of GICHD.

combining images. In each image, trees in the center point toward the camera. However, when combined, images show trees pointing in different directions. To overcome these challenges, one must increase the imagery overlap with more flights and fly along parallel and perpendicular lines. During the flight-planning stage in forest areas, the image overlap parameter should be set to a minimum of 70%.

Meteorological conditions should be carefully analyzed before each flight. The best photo quality is obtained on sunny days in winds lower than 3–4 m/s. Special attention should be paid to shadows. If the aim is to update cartographic material, shadows on the output imagery are undesirable. Conversely, shadows can facilitate the detection of objects (Figure 10).

#### MAPP in Mine Action

High-resolution satellite imagery and web-based online sources (Google Earth, ESRI, Open Street Maps and Bing Maps) are used on a daily basis by information managers and operators. Depending on available resources and the maturity of the organization, imagery use varies from background mapping for data collection and visualization to very advanced geospatial and remote-sensing analysis.

MAPP technology in mine action operations has great potential as a low-cost alternative to satellite imagery. Dense cloud coverage does not deter MAPPs, which have a high-temporal resolution and are much less expensive than aerial photography from piloted aircraft. When Inter-

net service is unavailable, MAPPs are an alternative solution to Google Earth. Moreover, a MAPP's imagery resolution (3–40 cm per pixel) is much better than that of Google Earth (45–1,000 cm or lower depending on the region).

Due to the geospatial quality of a MAPP image, drawing the outline of a hazardous area is more accurate than walking the same path on the ground with a standard GPS.

Images acquired with MAPP could be used to

- Communicate with local communities
- Enhance reporting capacities to stakeholders outside of mine action programs
- Facilitate the planning, recording and reporting of nontechnical and technical surveys
- Improve the quality of incoming spatial data
- Update cartographic material

Indirect indications of contamination or some evidence of mine/ERW presence might be detected, like the presence of trench lines, barbed wire, impact craters, etc. During rapid-response operations, these technologies could also help inspect blocked roads.

#### Conclusion

Our survey showed that the mine action sector has an interest in mini and micro UAS technologies. The test flights conducted with the senseFly Swinglet CAM confirmed that UAS technologies are highly mature,





Figure 9. Deformation of trees.

Figure courtesy of GICHD.



Figure 10. Evidence of mine/ERW presence.

Figure courtesy of GICHD.

easy to use, quick to deploy and provide useful high-resolution, georeferenced imagery.

When selecting appropriate equipment, special attention should be paid to imagery-treatment software. This task can be quite difficult and requires specific skills and manual labor. The software is sometimes more expensive than the UAS itself.

Based on our survey and discussions with ETH Zurich, the Swiss Federal Office of Topography and UNITAR, all organizations that use UAS outside mine action, the main constraint for this technology in most countries is opaque legislation. Most countries either equate UAS with commercial jetliners and military technology or to regular radio-controlled models for amateurs. Political and social acceptance is another concern. Privacy infringements similar to those encountered by Google Street View and the risk of accidents, despite Swinglet CAM's low mass, need further examination.

The next step of the GICHD project will be to test MAPP technologies in several mine-affected countries and to build the national capacities of countries willing to use the technology. Future research will be dedicated to imagery analysis and to determining the best ways to use these images. Another goal involves comparing different UAS in close collaboration with partners.

In May 2013, GICHD's senseFly Swinglet CAM was provided to IKMAA for independent testing. GICHD provided three days of training to IKMAA staff, who now use the Swinglet CAM without assistance. This culminated in the first global workshop on imagery and geodetics for mine action, the Geodetics



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Workshop, which took place 22 July–2 August 2013. The workshop's topic was the use of geo-spatial-mapping techniques in humanitarian mine action. One session was dedicated to using UAS in humanitarian mine action. ©

See endnotes page 66



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# Reinforcement for Operational Mine Detection Rats

When using animals for the detection of landmines, handlers face challenges of when to reinforce indication responses, as the actual location of landmines in the field is unknown. *Anti-Persoonsmijnen Ontmijnende Product Ontwikkeling* (Anti-Personnel Landmine Detection Product Development or APOPO) evaluated an inexpensive method to reinforce rat-indication responses in field settings using TNT to contaminate ground area. Rat detection accuracy was high over the TNT contamination after an overnight soak period of 16 hours and detection accuracy decreased as a function of days passed since soaking.

by Amanda Mahoney, Christophe Cox, Bart J. Weetjens, Tess Tewelde, TeKimiti Gilbert, Amy Durgin and Alan Poling [ APOPO ]



The fishing rod apparatus used to place a TNT-filled bag inside the search area.

All graphics courtesy of the authors.

Over the past decade, the *Anti-Persoonsmijnen Ontmijnende Product Ontwikkeling* (Anti-Personnel Landmine Detection Product Development or APOPO) has explored the use of giant African Pouched Rats (*Cricetomys gambianus*) for the detection of landmines and other explosive remnants of war (ERW). In an evaluation conducted in 2005, seven rats searched 20,234.28 sq m of land in Mozambique, and their overall detection accuracy exceeded 95%.<sup>1</sup> Similarly in 2010, teams of two rats searched 93,400 sq m of land in Mozambique, revealing 41 mines with a detection accuracy of 100%.<sup>2</sup> In both studies, human deminers verified the rats' indication responses by searching the area with metal detectors. Between 2007 and 2012, the rats were an integral part of APOPO's efforts to survey, clear and subsequently release to the public the Mozambique province of Gaza one year ahead of schedule. These results suggest that pouched rats are a valuable, adjunctive technology for locating landmines.

Other publications provide details on how the rats are trained and used.<sup>3,4,5</sup> In brief, food immediately reinforces (rewards) correct indication responses (i.e., those that occur within 1 m of a mine).<sup>5</sup> Incorrect indication responses are not reinforced; this is known as operant conditioning.

Occasional or intermittent reinforcement of correct responses is sufficient to maintain search behavior; however, by consistently failing to reinforce responses, a process technically termed **extinction**, performance decreases substantially.<sup>6,7,8</sup> A previous study conducted at APOPO's training center demonstrated the adverse effects of extinction

on mine detection rats.<sup>9</sup> This is a general problem for all animals used in detection including mine detection dogs.

Such results suggest that the rats should not work in an operational setting for extended periods of time unless the incorporation of regular reinforcement opportunities is possible. Contaminating a ground area with 2,4,6 trinitrotoluene (TNT), the primary explosive in most mines, and reinforcing indication responses within 1 m of that area may provide an opportunity for reinforcement. To implement such a system, however,

a controlled method for TNT contamination must be developed, and the performance of rats exposed to that system must be systematically evaluated. The purpose of the present study was to evaluate a procedure for arranging TNT contamination and to assess rats' performance in detecting a TNT-contaminated spot as a function of a) the duration of the contamination (soak) time and b) the time elapsed from contamination to testing.

## Setting and Subjects

Trials took place in Morogoro, Tanzania, on the APOPO training field, which contains approximately 1,553 landmines buried in a fenced 283,279.95 sq m site. The mines are buried within permanent boxes ranging in size from 100 to 400 sq m, and their locations are recorded in a database. The number of mines in a given box varies from zero to four.

Each condition comprised three test days during which six rats were tested once per test day in 18 different 100 sq m boxes containing no mines. Boxes were reused, but no box was repeated within a two-week span and, when repeated, the TNT contamination was put in a different part of the box. In total, 72 boxes were used.

Six fully trained adult rats participated in the test: Bila, Brandy, Evans, Malindi, Ndimalo and Stanley. The rats were distributed between two trainer teams; each team comprised two accredited rat trainers and one data recorder. The data recorders were minefield supervisors.

## Materials

Materials included data sheets, leak-proof Ziploc® bags containing 5 mg of military-grade TNT and six T-shaped, metal stands each holding a telescoping, fiberglass fishing rod parallel to and approximately 1 m above the ground. When fully extended, the rod had a 3 m length. One





An illustration of the rats' search configuration.

end of a 1 m cotton string was attached to the end of the fishing rod, and the other end was tied to the bag containing TNT. Contamination spots could be placed at desired locations by positioning the metal arm of the apparatus at various locations around the perimeter of a box and adjusting the length of the fishing rod, then tipping the device so that the bag of TNT (and nothing else) touched the ground in the box.

Training box materials consisted of measuring tapes, a rope, a hand-held device that made a loud click when pressed and bananas for food rewards (on non-test days only). The rats, attached to the rope via a harness, searched the box (see photo above). Between two trainers, the ends of two measuring tapes were attached to a rat's harness at zero. This procedure allowed the location of indicator responses to be recorded in x and y coordi-

nates. In all tests, rats were allowed to traverse the rope only once before they were moved to the next search lane.

Data were recorded on graph paper that depicted the box in x and y coordinates. When a trainer observed an indication response, which was scratching the ground for any length of time, the trainer informed the data recorder who recorded the location of the response. No food reinforcement was delivered during tests, however, four training days were scheduled between tests.

#### Procedures

This study was completed in three phases. All phases involved a series of tests in which six rats searched 100 sq m boxes. Six boxes were prepared for each test, and each rat searched one box. Two trainers who were otherwise uninvolved in the experiment set

up the boxes. All tests were conducted under blind conditions, meaning that trainers and data recorders were unaware of the contamination location. All indications, defined as scratching for any length of time, were recorded, and indications occurring within 0.5 m of the TNT-contaminated spot were considered correct. Each test took 10–18 minutes to complete, and test sessions were conducted between 0700 and 0900 hours.

The trainers withheld food reinforcement during the tests. To ensure that the rats continued to search on test days, four reinforcement days were scheduled between test days. On these reinforcement days, which were conducted in different boxes than those used during test days, the trainer received a data sheet indicating the location of the TNT-contamination area. When a correct response occurred, the trainer clicked and rewarded the

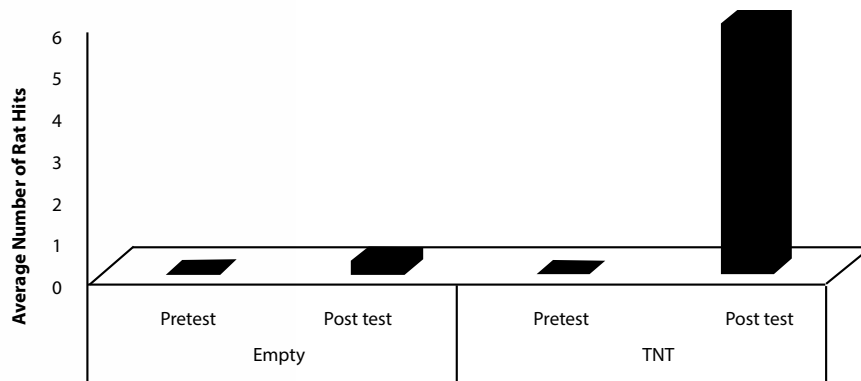


Figure 1. TNT vehicle assessment: empty bag versus bag with TNT.

rat with a small amount of banana. The results on reinforcement days were not included in the test results.

#### Phase 1: TNT Contamination Vehicle

The first test phase identified a vehicle for transferring TNT-volatile compounds to the ground. An APOPO supervisor placed 5 mg of military-grade TNT (crystal form) in six small, plastic, Ziploc bags. These allowed the amount of TNT crystals used and the size of the contamination area to be controlled. The TNT was placed in the bag at least 24 hours before the experimenter placed the bag in the field. While not in use, the bags were stored in a sealed aluminum container.

This phase included a pretest and a post-test, and both were repeated three times with all six rats. For each rat, the pre- and post-test were conducted on the same box, thus this phase used 18 boxes (six rats, three task repetitions of the pre- and post-test). Prior to each pretest, the experimenter determined locations where bags containing TNT and empty bags were to be placed later, and during the test the experimenter recorded rat indications within 0.5 m of these locations. The pretest was conducted to ensure that any indication occurring over sites with TNT contamination was not the result of random responses by the rats. The same box was used in the pretest and post-test for each rat to demonstrate that before the empty bag and TNT-filled bag were placed in the box, there was nothing in the box to account for any rat indications.

Subsequently, the boxes used during the pretest were prepared with two targets each: a TNT bag and a bag without TNT for the control. The bags were placed at least 6 m apart and were left on the ground for 16 hours. The bag and presentation apparatus were then removed, and the hole created by the apparatus stand (holding the fishing rod of TNT) was concealed; afterward, the post-test commenced within 1 hour.

All rat indications, defined as scratching for any length of time, were recorded but not reinforced. Indications occurring within 0.5 m of a location where a bag with TNT or an empty bag was placed were considered hits on the target. These test results showed that the rats reliably indicated TNT locations but did not indicate the location of empty bags (see results section), and so this system was used for the remaining tests.

#### Phase 2: Duration of Soak Time

The amount of time that a bag containing TNT must remain on the ground for the volatile compounds to be detectable was assessed by comparing the rats' performances at soak times of 1 and 16 hours. These times were considered as potentially useful because the rats train in the morning and, therefore, the 16-hour test could be prepared the afternoon prior to the evaluation, and the 1-hour test could be prepared early in the morning and evaluated on the same day. At both soak times, a bag with TNT was placed in six 100 sq m boxes at randomly selected locations. After 1 hour or 16 hours, the bag was removed, and the rats were tested within 1 hour as described above.

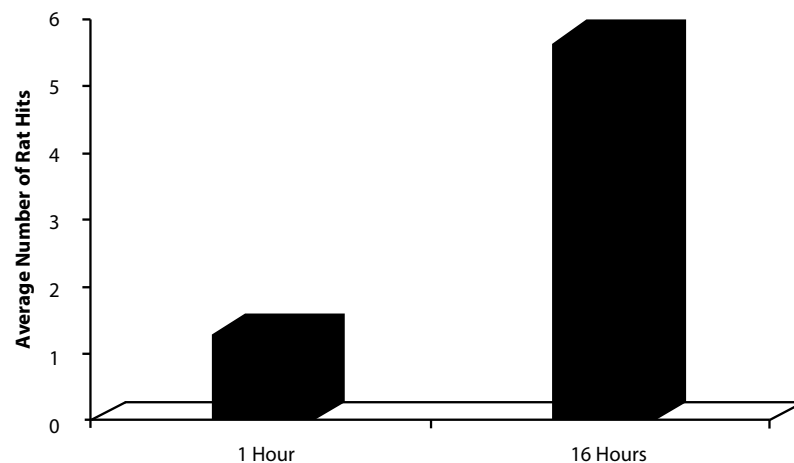


Figure 2. Effects of the duration of TNT soak period.

Each rat evaluated one box per test. Six rats completed three tests with the 1-hour soak time and three tests with the 16-hour soak time, all on different days (18 tests per condition, 36 total in Phase 2). All rats were exposed to the same soak-time condition each test day, but the conditions were interspersed in this order: 1 hr, 16 hr, 1 hr, 16 hr, 16 hr, 16 hr.

#### Phase 3: Contamination Period

The third phase of testing evaluated the number of days that the TNT volatiles remained detectable by the rats. All tests were prepared after letting the TNT target soak for 16 hours. Tests were conducted one, three and six days after the TNT was removed from the box. As in previous tests, one box was prepared for each rat, and each rat repeated the test three times at each time increment in new boxes (18 tests per time increment, three time increments, 54 tests and boxes total). The targets were placed randomly inside the box, and the rats evaluated each target once. Tests at each time increment were repeated three times in different boxes and on different days.

#### Results

Results are displayed in Figures 1-3. Overall, they show a decreasing trend in the number of rat indications as a function of post-contamination days. During the pretests in Phase 1, none of the rats indicated within 0.5 m of where the empty bag or the TNT was put after the pretest, indicating that there were no other markers that could account for rat indications. During the post-tests in Phase 1, Ndimalo indicated within 0.5 m of the empty bag on one of his three tries, and all six rats indicated within 0.5 m of the bag with TNT on all post-test attempts.

Phase 2 compared performances after TNT soak periods of 1 and 16 hours (Figure 2). After a 1-hour soak period, 1, 1 and 2 (mean = 1.3) rats indicated within 0.5 m of the

TNT-contaminated spot. One rat detected the TNT on the first and second 1-hour soak-time test days, and two rats detected the TNT on the third test day. After a 16-hour soak period, 5, 6 and 6 (mean = 5.7) rats indicated within 0.5 m of the TNT-contaminated spot. Five rats detected the TNT on the first 16-hour soak-time test day, and six rats detected the TNT on the second and third test days. On average, 3.67 ( $SE = .33$ ) more rats detected the TNT after a 16-hour soak period than after a 1-hour soak period, and the standard error of the difference between the two means was found to be statistically significant ( $t [2] = 11, p = .008$ ).

Phase 3 evaluated the number of days that the TNT continued to be detected. Results appear in Figure 3. The 16-hour soak test provided results for Day 0 (mean hits = 5.7). On test days conducted one day after the TNT was removed, 3, 4 and 4 rats (mean = 3.7) detected the TNT or indicated within 0.5 m of the TNT-contaminated spot. On test days conducted three days after the TNT was removed, 3, 5 and 1 (mean = 3) rats detected the TNT. On tests conducted six days after the TNT was removed, 1, 3 and 0 (mean = 1.3) rats detected the TNT.

Table 1 shows the individual rat results. Rat sensitivity varied between four passed tests (Stanley) and 10 passed tests (Bila, Evans and Ndimalo), suggesting that some rats are more sensitive to TNT volatiles on the ground than other rats. Evans was the only rat that passed at least one test at each soak interval (1 hour and 16 hours) and post-soak intervals (one, three and six days).

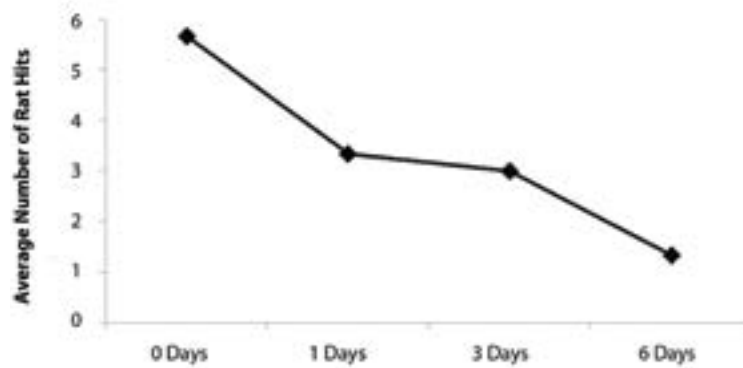


Figure 3. Effects of the number of days since TNT soak period.

#### Discussion

The results, obtained under dry and warm conditions with little rain, were robust. This study found that

- TNT sealed in a small, plastic, Ziploc bag effectively transferred TNT volatiles to the search box.
- A 16-hour soak period produced reliable TNT detection, while a 1-hour soak period did not.
- After a 16-hour soak period, TNT volatiles were reliably detected 1 hour after the TNT was removed, and some rats could detect the TNT six days later.

Devising an effective reinforcement system for search animals in an operational demining setting is challenging. Reinforcing an indication response may strengthen either accurate or inaccurate responses, depending on whether mines are present. However, some

strategy must be provided to at least occasionally reinforce hits, or the animal will stop responding. This can be accomplished in various ways: through the use of training fields that coordinate with operational fields and the use of planted defused mines in known locations on previously cleared operational fields.


Although workable, both of these strategies are difficult to arrange, and pose logistical challenges. For example, training fields should closely resemble operational fields so that animals do not learn context-specific identification responses that prevent them from differentiating the training field from the operational field. The procedure evaluated in the present study is easy to use and effectively transfers TNT volatiles to a search area without leaving other cues around the TNT target, making it well-suited for creation of reinforcement opportunities in an

Test	Bila	Ndimalo	Stanley	Brandy	Malindi	Evans	Total
1 hr	-	-	-	-	-	X	1
1 hr	-	X	-	-	-	-	1
1 hr	-	X	-	X	-	-	2
Day 0/16 hrs	X	X	-	X	X	X	5
Day 0/16 hrs	X	X	X	X	X	X	6
Day 0/16 hrs	X	X	X	X	X	X	6
Day 1	X	-	-	-	X	X	3
Day 1	X	X	-	-	X	X	4
Day 1	X	X	-	X	-	X	4
Day 3	X	X	-	-	-	X	3
Day 3	X	X	X	X	X	-	5
Day 3	-	X	-	-	-	-	1
Day 6	-	-	-	-	-	X	1
Day 6	X	-	X	-	-	X	3
Day 6	-	-	-	-	-	-	0

Table 1. Distribution of rat indications (X) by test.



operational setting. Further research is needed, however, to ensure that animals reinforced to identify TNT locations can also accurately detect landmines. Research must also verify that the animals do not eventually develop stimulus discrimination and stop responding to mines while continuing to respond to TNT contamination sites.<sup>7</sup>

The procedure evaluated in the present study uses inexpensive and robust materials and allows the overnight creation of reinforcement targets in an operational setting with minimal time, cost and personnel, which are favorable. For these reasons, this system appears to be practical for operational demining using rats, and APOPO is currently verifying this. A similar system may be useful with demining dogs, possibly meriting investigation. 

*See endnotes page 67*



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## In Remembrance: Michael Creighton

Michael Creighton of Norwegian People's Aid (NPA) was killed in an airplane crash in Laos along with his father, Gordon Bruce Creighton, and 47 others on 16 October 2013.<sup>1</sup>

The Lao Airlines flight was reportedly traveling from the Lao capital of Vientiane to Pakse in southern Laos when it crashed in the Mekong River while attempting to land. A statement from Lao Airlines indicated that the accident was due to "extreme[ly] bad weather conditions" from tropical storm Nari. According to an airline-ratings service, the aircraft, while brand new, had not undergone a safety audit.<sup>1</sup>

Creighton, 41, had worked as the operations manager for NPA's Survey and Clearance Programme in Laos since February 2012.<sup>2</sup> Creighton's father was reportedly visiting to view his son's work in Laos.<sup>1</sup>

"Mike [was] a real catch for us as [he] was an established authority in mine action and well versed in all things relating to land release," says Atle Karlsen, country director, NPA Lao PDR. "In the 18 months since, Mike has been a key part of NPA's program, testing and implementing the groundbreaking Cluster Munition Remnant Survey, changing the UXO sector in Laos in the process. Mike was a creative and constructive operations manager, always looking for ways to improve our work and increase outputs. He was always pleased to engage with other stakeholders to capacity build and argue for improvements and increased quality. The last 18 months in the NPA Laos Operations Room [were] creative and constructive beyond anything I have experienced in mine action, much thanks to Mike."<sup>3</sup>

From Glen Innes, New South Wales, Australia, Creighton served as an officer in the Royal Australian Engineers for 11 years before establishing himself as a project-operations and planning manager in the explosive ordnance disposal and mine action fields in 2001. He worked in Afghanistan, Bosnia and Herzegovina, Cambodia, Iraq, Laos and Lebanon in a variety of commercial and U.N. Mine Action Service positions. From 2008 until 2011 Creighton worked with the Geneva International Centre for Humanitarian Demining (GICHD), where he was the land release program manager.<sup>4,5,6</sup>

According to Ian Mansfield, a mine action consultant and GICHD's former deputy director, "Michael was a highly capable, well known and well-regarded member of the mine action sector. He had a high level of technical skills and solid hands-on practical experience in the field. He was able to effectively apply these skills and knowledge ... at the GICHD to produce high-quality work, and his presence at the Centre contributed to maintaining its high standards and reputation. Michael will be sadly missed by all who knew him."<sup>5</sup>

Among other articles in *The Journal*, Creighton most recently coauthored (with Atle Karlsen and Mohammed Qasim) the article, "Cluster Munition Remnant Survey in Laos," published in Issue 17.2 (Summer 2013). In addition, according to Mansfield, while at GICHD, Creighton "was a part of the team that drafted the new land release series for the International Mine Action Standards (IMAS) and [he] coauthored IMAS documents."<sup>6</sup>


Creighton is survived by his fiancée, mother and two siblings.<sup>1,7</sup> Messages of sympathy and condolences can be sent to [creighton.condolences@gmail.com](mailto:creighton.condolences@gmail.com). 



Photo courtesy of Michael Creighton's Facebook page.

See endnotes page 67

Landmine Injuries and Human Rights: The Terminology of Victims and Survivors by Macauley [ from page 4 ]

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The Power of Peers: Rethinking Victim Assistance by Rutherford and Macauley [ from page 6 ]

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Adapting Survivor Assistance to the Needs of Child Survivors by Eke [ from page 14 ]

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#### Masculinity: The Unseen Barrier in Survivor Assistance by Duprat and Peçak [ from page 18 ]

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#### SPECIAL REPORT: SA/LW Marking and Tracing Initiatives

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